

**Water Resource Characterization Report
2000 and 2001 Field Seasons**

Grant Kohrs Ranch National Historic Site

United States National Parks Service, Department of Interior

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Executive Summary

During the spring, summer and fall of 2000 and 2001 the Grant Kohrs Ranch National Historic Site was instrumented to allow examination of the nature and extent of contamination and pathways of migration in soil pore water and groundwater resulting from the release of hazardous substances originating from mining and smelting operations in the Deer Lodge and Butte valleys. Over 165 soil water samples, 11 rounds of soil water matrix potential measurements, 440 groundwater samples and 15 sets of water level data were collected, processed and analyzed. This work established baseline concentrations of hazardous substances in the soil water and groundwater for As (0.005 mg/L), Cu (0.001mg/L), Cd (0.003mg/L), and Zn (0.002mg/L). According to these baseline concentrations, 87,750 m³ of soil water and 1,852,700 m³ of groundwater are estimated to have contaminant concentrations exceeding 2X the baseline. Arsenic concentrations exceeding 10 ug/L (2X baseline) were found to contaminate 84,750 m³ of soil water and 1,631,000 m³ of groundwater. Contaminants are released from smelter waste air-fall contaminated soils by natural recharge, irrigation in the western and eastern fields, and by recharge to the contaminated floodplain soils. Some contaminants are also present in the irrigation water that originates from the Clark Fork River. Contaminated soil water is estimated to move to the water table in 10's to 100's of days impacting groundwater quality. Groundwater flows from the site boundaries to discharge to the Clark Fork River within 3000 to 8000 days. Approximately 730 m³/d of contaminated groundwater originating on the Grant Kohrs Ranch discharges into the Clark Fork River within the park boundaries.

Table of Contents

1) Introduction and Objectives.....	7
2) Materials and Methods.....	7
a) Groundwater sampling.....	7
b) Soil water instrumentation and sampling.....	10
c) Precipitation instrumentation.....	10
3) Results.....	11
a) Groundwater flow.....	11
b) Soil pore water flow.....	15
c) General comparison of 2000 and 2001 field seasons.....	16
d) Determination of baseline soil water and groundwater concentrations.....	18
e) Extent and magnitude of hazardous substances.....	21
i) Summary.....	21
ii) Volume calculations.....	21
4) Pathways.....	44

Appendices

Appendix A Water Resources

A.1 Field Instrumentation Installation Information and Diagrams.....	A-1
A.2 Field Measurements.....	A-23
A.3 Laboratory Methods.....	A-73
A.4 Sample Collection and Analysis Information.....	A-74
A.5 Alkalinity and Anion QC Data.....	A-84
A.5.1 Standards.....	A-84
A.5.2 Bottle Blanks, Trip Blanks, Lab Reagent Blanks and Preparation Blanks.....	A-93
A.5.3 Field Duplicates and Splits and Laboratory Duplicates.....	A-98
A.5.4 Laboratory Sample Matrix Spike Samples and Laboratory Fortified Matrix Blanks.....	A-110
A.6 Metals QC Data.....	A-118
A.6.1 Instrument Performance Check Solutions.....	A-118
A.6.2 Bottle Blanks, Trip Blanks, Lab Reagent Blanks and Calibration Blanks.....	A-123
A.6.3 Field Duplicates and Splits and Laboratory Duplicates.....	A-130
A.6.4 Laboratory Sample Fortified Matrix Sample Spikes and Fortified Matrix Blanks.....	A-145
A.7 Alkalinity, Anion and Coliform Data.....	A-157
A.8 Metals Data.....	A-168

List of Figures

Figure 1 Study Area.....	8
Figure 2 Instrument locations.....	9
Figure 3 Potentiometric Map: June 2000.....	12
Figure 4 Potentiometric Map: December 2000.....	13
Figure 5 Hydrograph: Clark Fork River and GW-5.....	14
Figure 6 Tensiometer Data: Nest #4.....	15
Figure 7 Tensiometer Data: Nest #8.....	15
Figure 8 Precipitation data: 2000-2001.....	16
Figure 9 Nest #4 Cu data: 2000 vs. 2001 data.....	17
Figure 10 Nest #3 As data: 2000 vs. 2001 data.....	17
Figure 11 Wells Used for Baseline.....	19
Figure 12 Wells: Arsenic, Multiples of Baseline.....	22
Figure 13 Wells: Cadmium, Multiples of Baseline.....	23
Figure 14 Wells: Copper, Multiples of Baseline.....	24
Figure 15 Wells: Zinc, Multiples of Baseline.....	25
Figure 16 Lysimeters: Arsenic, Multiples of Baseline.....	26
Figure 17 Lysimeters: Cadmium, Multiples of Baseline.....	27
Figure 18 Lysimeters: Copper, Multiples of Baseline.....	28
Figure 19 Lysimeters: Zinc, Multiples of Baseline.....	29
Figure 20 Wells: Composite.....	31
Figure 21 Lysimeters: Composite.....	32
Figure 22 Calculation of Median Groundwater Depths (top of screen below water table).....	34
Figure 23 Calculation of Median Groundwater Depths (top of screen above water table).....	35
Figure 24 Illustration of Median Groundwater Depths for Multilevel Piezometers.....	36
Figure 25 Well Depths versus Multiples of Baseline for As, Cd, Cu and Zn.....	37
Figure 26 Well Depths versus Multiples of Baseline for As, Cd, Cu and Zn.....	37
Figure 27 Well Depths versus Multiples of Baseline for As, Cd, Cu and Zn.....	38
Figure 28 Wells : Median Arsenic (drinking water standard)	39
Figure 29 Lysimeter Depths versus Multiples of Baseline for As, Cd, Cu and Zn.....	40
Figure 30 Lysimeter Depths versus Multiples of Baseline for As, Cd, Cu and Zn.....	41
Figure 31 Lysimeter Depths versus Multiples of Baseline for As, Cd, Cu and Zn.....	41
Figure 32 Lysimeters: Median Arsenic (drinking water standard)	42
Figure 33 Irrigation water multiples of baseline.....	44

List of Tables

Table 1 Hydraulic Conductivity Values.....	11
Table 2 Medians Sites Used for Baseline.....	20
Table 3 Summary Statistics: Baseline.....	21
Table 4 Groundwater and Soil Water Median Concentrations.....	30
Table 5 Soil Water: Composite Impact	43
Table 6 Soil Water: Arsenic Impact.....	43
Table 7 Groundwater: Composite Impact	43
Table 8 Groundwater: Arsenic Impact	43
Table 9 Total Contamination Estimations.....	43

1) Introduction and Objectives

This report is the result of two years of completed field work at the Grant Kohrs Ranch Historic Site (GKR) near Deer Lodge, Montana (Figure 1). Our work characterizes the extent of contamination in site soil water and groundwater from exposure to hazardous substances. Objectives of the sampling and characterization effort were to:

- A. Characterize the patterns of soil water and groundwater movement;
- B. Determine hazardous substance baselines for soil water and groundwater;
- C. Characterize the aerial distribution and vertical extent of hazardous substances in the soil water and groundwater systems;
- D. Compute the volumetric extent of contaminated water resources.

A first year report describing results of the summer of 2000 field season (February 2001, **Geologic, Soil Water and Groundwater Report - 2000 Grant Kohrs Ranch National Historic Site**) presents details on field methodology and project quality control. The February 2001 report (FR 01) documents sampling design, instrumentation and monitoring methods, sample preparation and analysis methods, and statistics.

Methods utilized in the 2000 field season (June through September, 2000) were applied to all work done in the 2001 field season (May through September, 2001). New instrumentation installed during the 2001 field season, results of the 2000 and 2001 field season studies and calculations of volumes of impacted soil water and groundwater, based on results of both field seasons, are presented in this report.

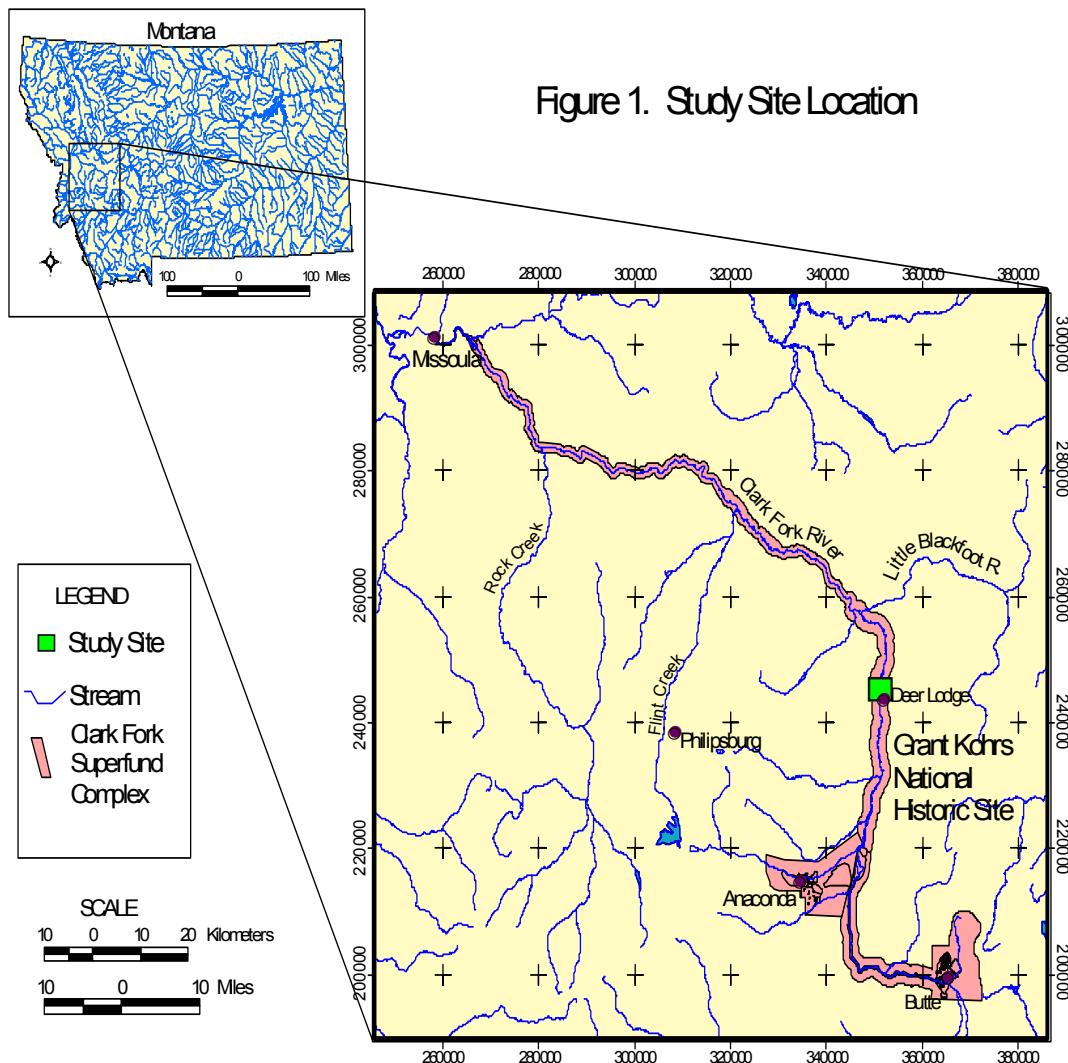
2) Materials and Methods

a) Groundwater sampling

During the 2000 field season nine sets of groundwater level measurements were completed and 264 groundwater samples were collected (FR 01 , appendix B.8). Locations of instrumentation are shown in Figure 2.

Groundwater levels were recorded periodically from February through July 2001. Six sets of water level measurements were collected (Appendix A.2). Water samples were obtained three times, during May, June and July, 2001. A total of 179 groundwater samples were collected (Appendix A.8). Water level measurements and sampling procedures followed SOPs GW-2, GW-11, GW-14, and GW-15. As samples were collected, pH, conductivity, and temperature measurements were performed (see SOPs GE-2, GE-4, and GE-3). All data and relevant information were recorded in the field logbook as per SOP QA-5. See Appendix A.2 for data. FR 01 details sampling and analyses procedures.

Slug tests were performed on 14 two-inch diameter monitoring wells to estimate aquifer hydraulic conductivities. A solid slug and electrical transducer were used to conduct the



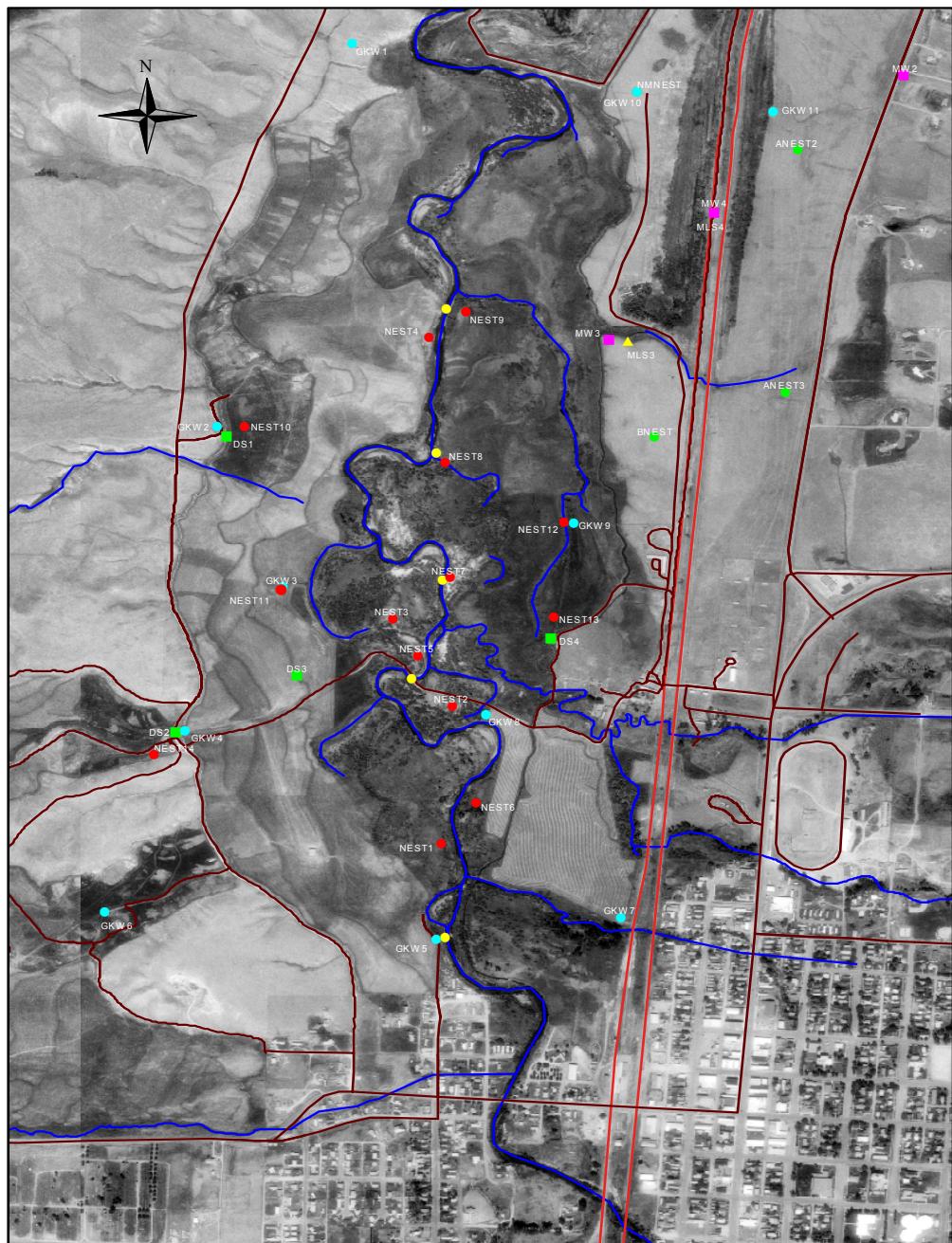


Figure 2. Groundwater and Soil Water Site Locations

300 0 300 600 Meters

UTM 12 North, NAD 1983, HPGN (Idaho/Montana)

- | | |
|---|----------------------------------|
| ● | Soil Water and Groundwater Nests |
| ■ | Monitoring wells |
| ▲ | Multilevel samplers |
| ● | GKR monitoring wells |
| ● | Effluent field nests |
| ■ | Ditch Sampling Sites |
| ● | Staff gages |

tests and data were analyzed using the Bouwer-Rice slug test method (Bouwer and Rice, 1976) as adapted into the program Aquifer Test (Waterloo Hydrogeologic Inc., 2001).

b) Soil water instrumentation and sampling

During the 2000 field season 14 sets of soil water monitoring instruments were installed. These typically included two to three nested tensiometers and suction lysimeters. Seven sets of soil matrix potential measurements and 57 soil water samples were collected and analyzed during the 2000 field season (FR 01, Appendix B.8). Locations of instrument sites are shown in Figure 2.

In May of 2001, 5 new nests of instruments were installed. These new nests were installed for the purpose of evaluating impacts to soil water resulting from flood irrigation. Each nest consists of 3 tensiometers and 3 suction lysimeters (See SOPs GW-3, GW-4, GW-5, GW-6, and GW-7). These nests were designated Nests 10-14 (Figure 2). The lysimeters were installed at approximately 10, 20, and 30-inches below land surface. Tensiometers were installed to depths of 6, 12, and 24-inches below land surface. General instrument diagrams and installation information can be found in Appendix A.1.

In June 2001, an additional lysimeter was added to both Anest#1 and Anest#2 (Figure 2) in the sewage effluent irrigated fields. Each of these lysimeters were installed to depths of 30 in. below land surface.

Soil water data were collected three times, during May, June and July 2001, at floodplain, irrigated west fields, irrigated east fields and the east bench sewage effluent fields. A total of 112 samples were collected (Appendix B.8). The low soil moisture content prevented sample collection from control sites Nest #14 and NMNest during both field seasons. A round of tensiometer data was also collected in September 2001. Soil matrix potential measurements and sampling procedures followed SOPs GW-2, GW-11, GW-14, and GW-15. As samples were collected, pH, conductivity, and temperature measurements were performed (see SOPs GE-2, GE-4, and GE-3). All data and relevant information were recorded in the field logbook as per SOP QA-5. See Appendix A.2 for data.

c) Precipitation instrumentation

In June 2001, a tipping bucket precipitation gauge with an electronic event recorder was installed on an east bench fence post. This instrument was operated according to manufacturer instructions. See Appendix A.1. for installation and operating instructions.

3) Results

a) Groundwater flow

Groundwater occurs near the ground surface at GKR. The water table is within about 5 ft of land surface in the floodplain portion of the site; 10 to 20 ft below land surface under the gravel terraces to the east and up to 30+ ft below land surface in the upper parts of the west side fields. Contours of the water table in June 2000 and December 2000 show the groundwater system slopes towards the Clark Fork River (Figures 3 and 4). Groundwater flow is from the uplands to the floodplain area. Groundwater flow was monitored throughout the 2001 season and interpreted flow directions were similar.

During the two year study the river stage was recorded electronically at the bridge over the Clark Fork River and the position of the water table at a well in Nest 5. Figure 5 shows a stream stage variation of 2.2 ft and a water table change of 1.5 ft during the period of study. The water table position in the flood plain indicates that, apparently at this site, flow is from the river to the immediately adjacent floodplain during most of the year. At 5 sites along the river channel where stream staff gauges and wells in the river bank were installed, the water table position was generally higher than the stream stage suggesting groundwater discharge to the river in most locations.

Results of slug tests were organized by geomorphic feature. Computed values ranged from 10.2 to 68.6 ft/d as shown in Table 1. One aquifer test was performed on the east bench, resulting in computed hydraulic conductivity value of 110 ft/d, also included in Table 1.

Table 1. Aquifer hydraulic conductivity estimates.

Area	Range of Hydraulic Conductivity (ft/d)	N	Average Hydraulic Conductivity (ft/d)
West Bench	12.8-41.5	8	22
Floodplain	10.2-53.1	12	34
East Bench	10.8-110	17	42

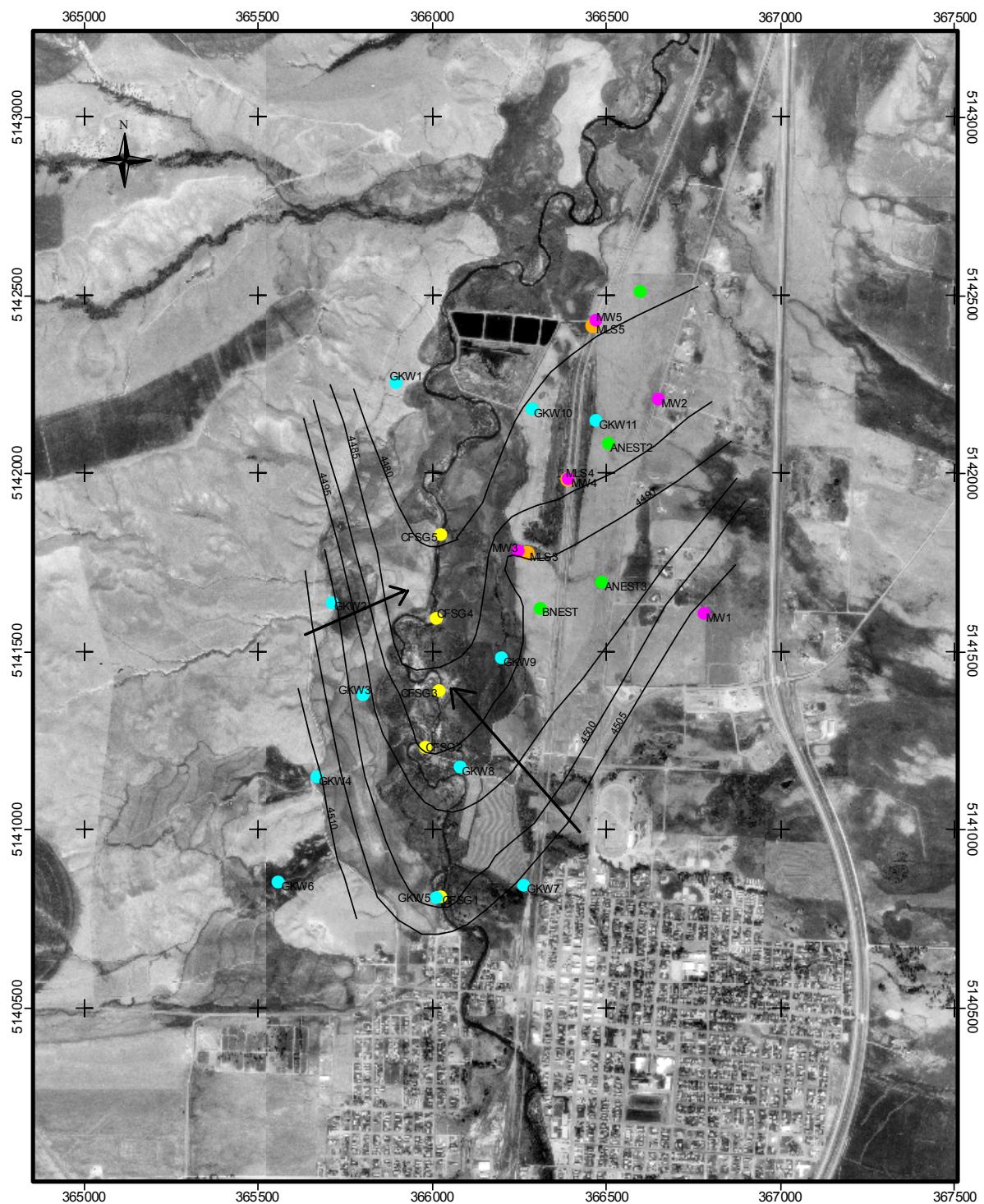
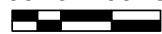


Figure 3. Potentiometric Map: June 2000

200 0 200 Meters



LEGEND	
	Potent_6-00.
	Monitoring wells
	Multilevel samplers
	GKR wells
	Effluent field nests
	Staff gages

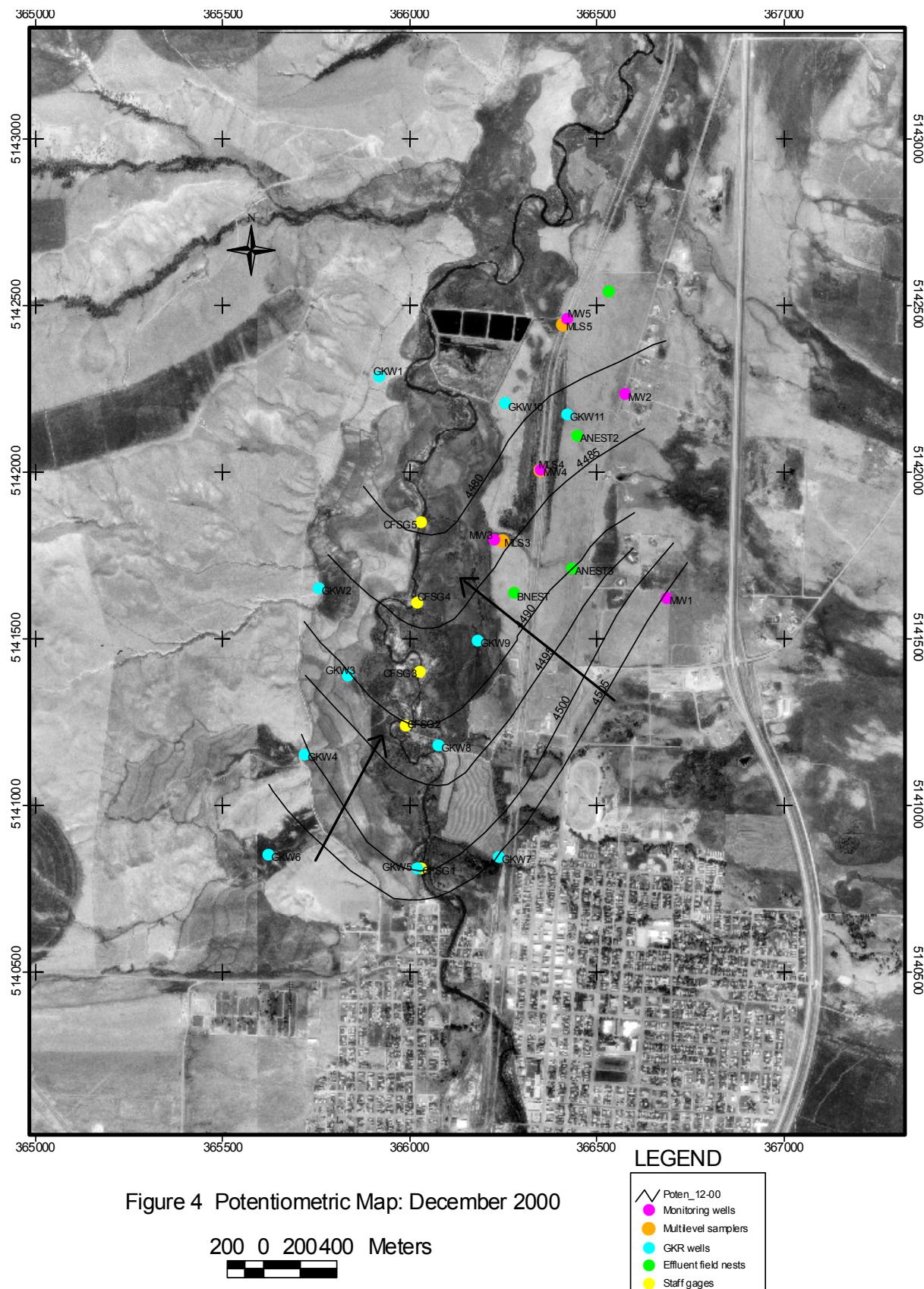
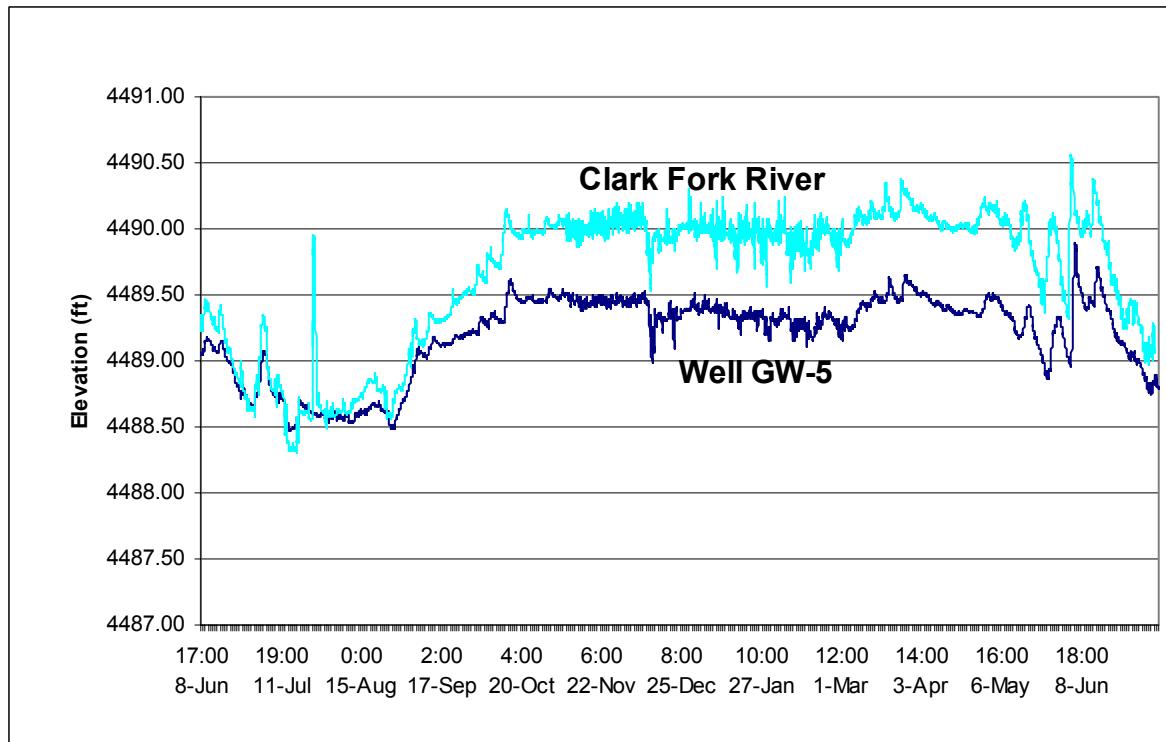


Figure 4 Potentiometric Map: December 2000

200 0 200 400 Meters



Figure 5. Hydrographs of the Clark Fork River and Well GW-5, June 2000-August 2001.



b) Soil pore water flow

Tensiometer readings from both 2000 and 2001 generally indicated more negative matrix potentials in shallow measuring depths (6-inches below land surface) (Figures 6 and 7; See Appendix A.2 for additional plots). In addition, the soil matrix potential became more negative as the summer and fall progressed suggesting continued drying of the soil. Interpreted movement of soil water at most sites was toward the land surface at shallow depths.

Figure 6. Soil matrix potentials for Nest #4.

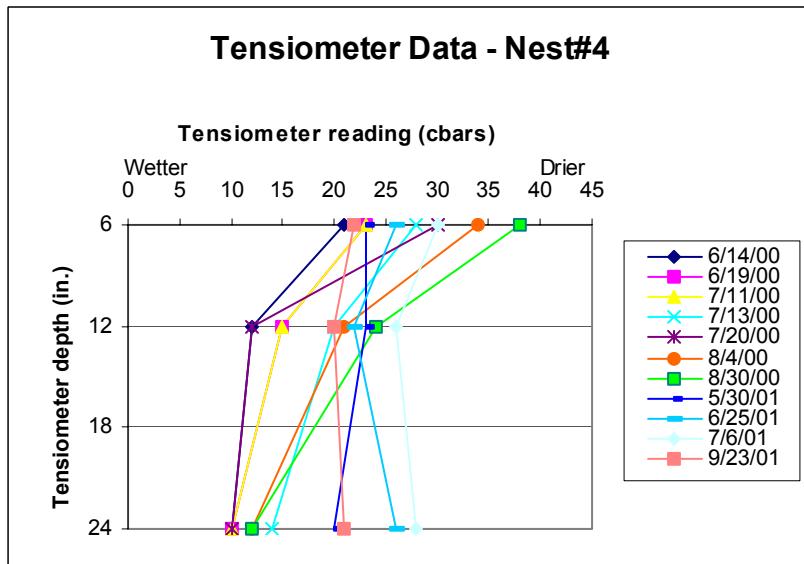
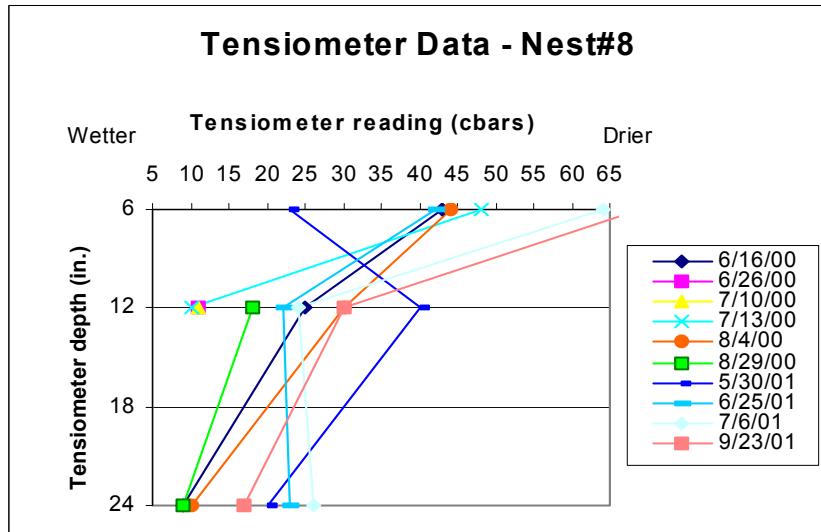


Figure 7. Soil matrix potentials for Nest #8.



c) General comparison of 2000 and 2001 field seasons

Both field seasons represented drought conditions. Precipitation in the form of snow pack and rainfall was well below normal (Western Regional Climate Center, 2001). Soil matrix potential in July 2001 was more negative (lower soil moisture content) than in the previous field season (Figures 6 and 7, and Appendix B.2). Precipitation records for the area are presented in Figure 8 (2000 and 2001).

Groundwater levels and stream stage fluctuations, timing and magnitude were also similar over both years as shown in Figure 5.

Soil water and ground water chemistry data collected in July of both field seasons at sites 4 and 3 (located in the floodplain) are presented in Figures 9 and 10. These data indicate that soil water and groundwater chemistry for the two seasons are similar.

Figure 8. Inches of precipitation at GKR from May 2000 to September 2001.

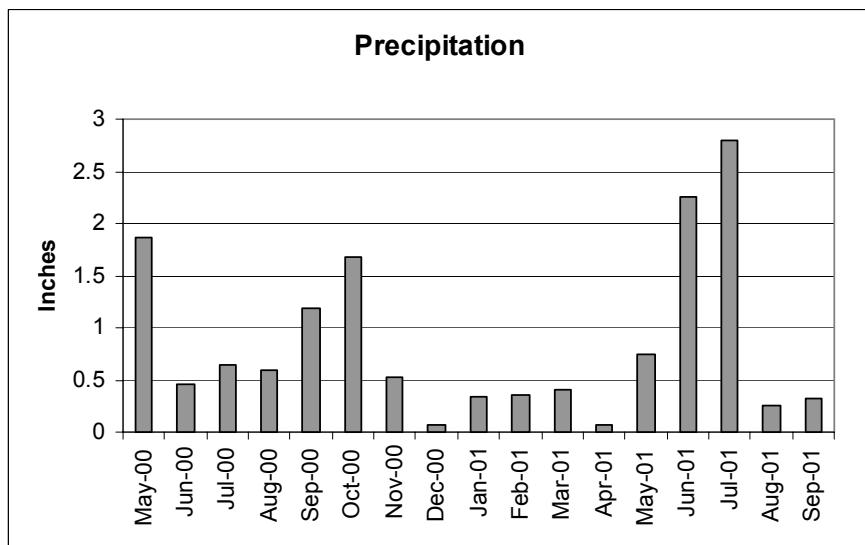


Figure 9. Copper concentrations in soil water and groundwater for the same month in the two field seasons.

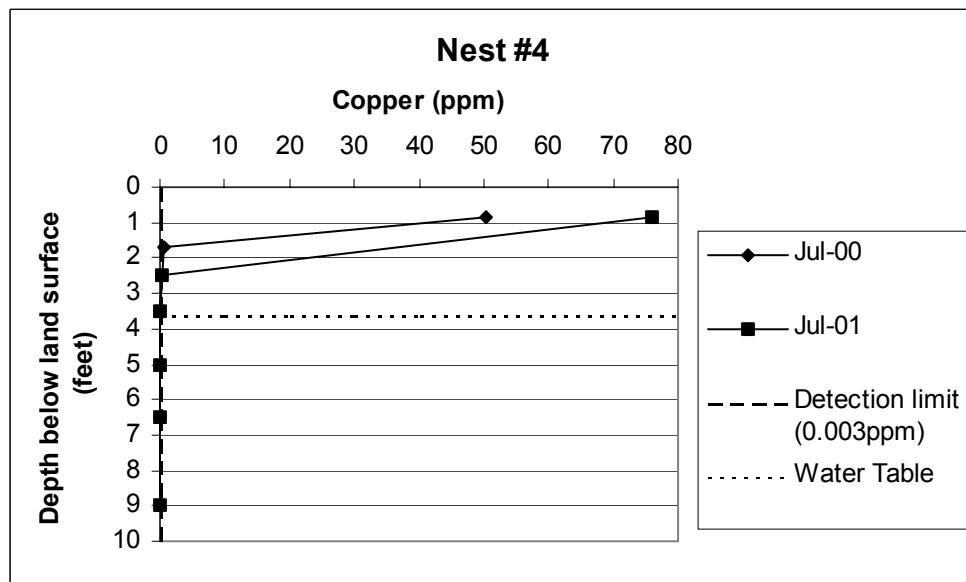
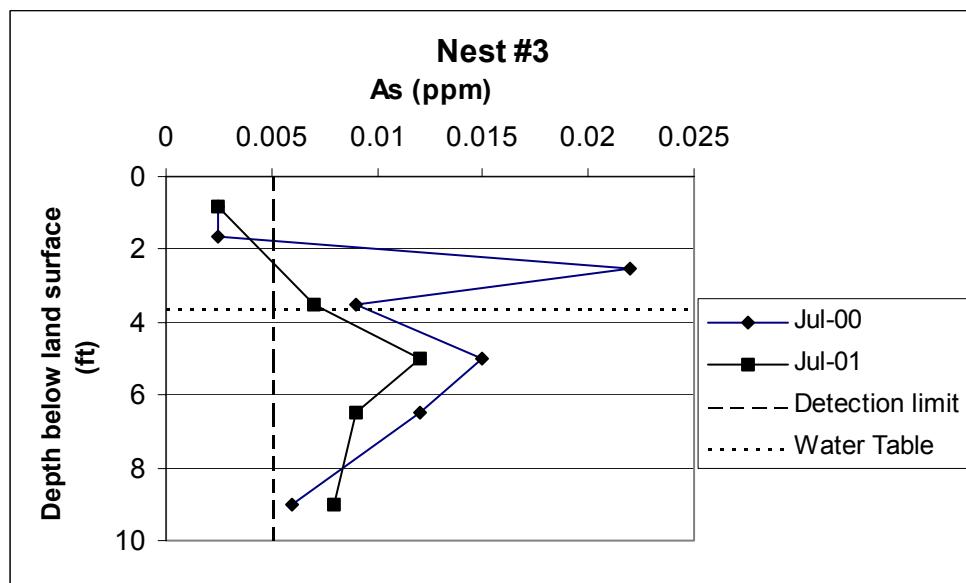


Figure 10. Arsenic concentrations in soil water and groundwater for the same month in the two field seasons.



d) Determination of baseline soil water and groundwater concentrations

Groundwater concentrations were used to calculate baseline concentrations for both soil water and groundwater. Soil water recharge was considered to become groundwater via downward percolation, thus groundwater baseline values were used as the soil water baseline.

Sites used to calculate baseline concentrations were based on the geologic setting and distance from the impacted floodplain. The following wells were chosen to use as indicators of a local baseline concentration: GKW1, GKW7, GKW10, GKW11, MW1, MW2, MW4, MW5, MLS4 (MLS-4RED, MLS-4W) and MLS5 (MLS-5BLUE, MLS-5GREEN, MLS-5RED, and MLS-5W) (FR 01). Figure 11 shows the locations of the wells used for baseline calculations. Baseline values were calculated for As, Cd, Cu, and Zn. Baseline for Pb was not used because nearly all samples had concentrations below the detection limit.

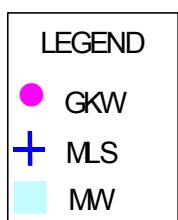
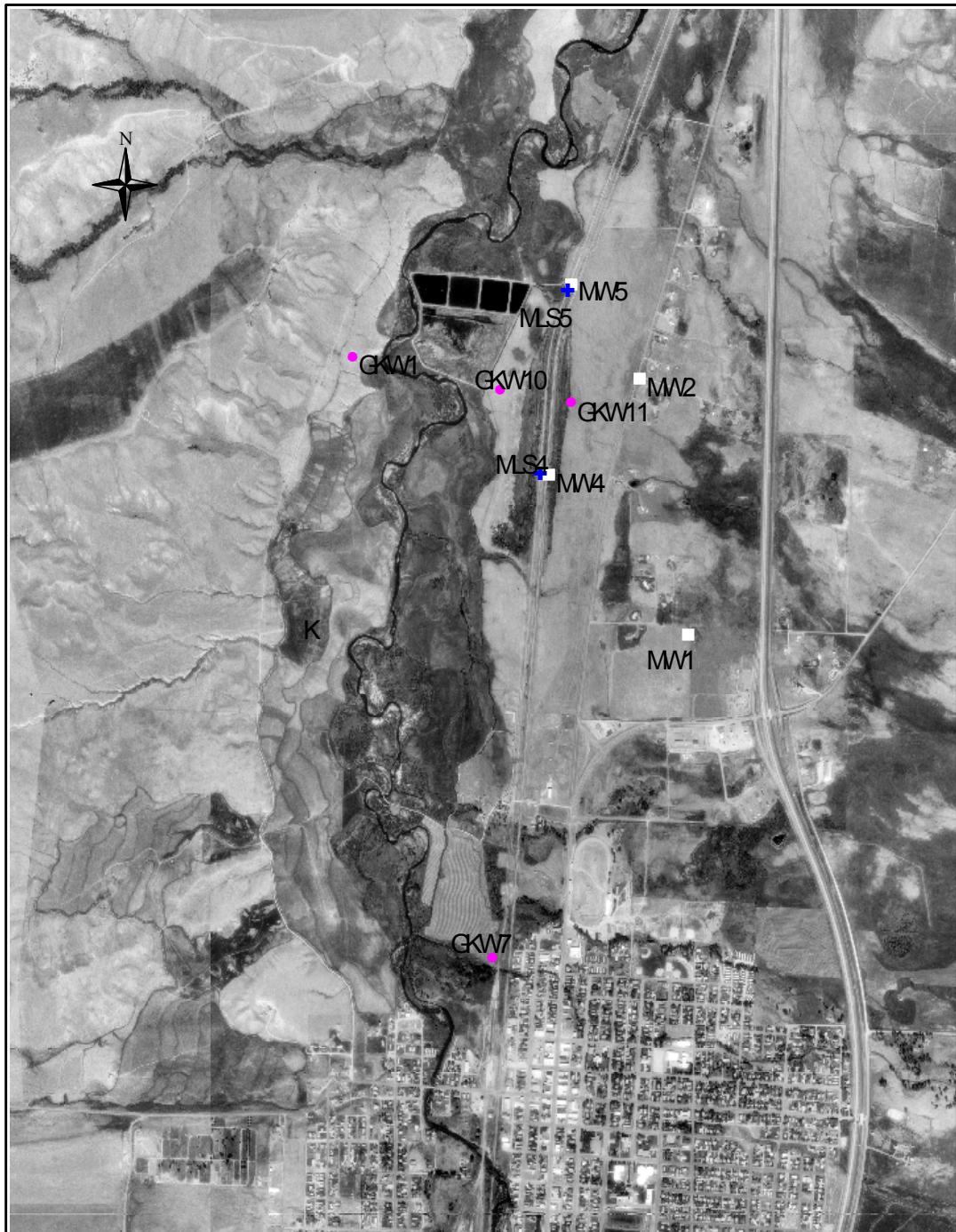


Figure 11. Wells Used for Baseline
Grant Kohrs Ranch, 2000-2001 Field Season

600 0 600 Meters

Table 2. Medians: Sites Used for Baseline (ppm)						
		Median	MAD	Maximum	Minimum	N
As	GKW1	0.005	0.0000	0.005	0.005	4
	GKW7	0.005	0.0000	0.005	0.005	4
	GKW 10	0.005	0.0000	0.005	0.005	4
	GKW11	0.005	0.0000	0.005	0.005	4
	MLS 4	0.005	0.0000	0.005	0.005	9
	MLS 5	0.005	0.0000	0.008	0.005	16
	MW 1	0.005	0.0000	0.005	0.005	5
	MW 2	0.005	0.0000	0.005	0.005	6
	MW4	0.005	0.0000	0.005	0.005	5
	MW5	0.005	0.0000	0.007	0.005	6
Cd	GKW1	0.001	0.0000	0.001	0.001	4
	GKW7	0.001	0.0000	0.001	0.001	4
	GKW 10	0.001	0.0000	0.001	0.001	4
	GKW11	0.001	0.0000	0.001	0.001	4
	MLS 4	0.001	0.0000	0.001	0.001	9
	MLS 5	0.001	0.0000	0.001	0.001	16
	MW 1	0.001	0.0000	0.001	0.001	5
	MW 2	0.001	0.0000	0.001	0.001	6
	MW4	0.001	0.0000	0.001	0.001	5
	MW5	0.001	0.0000	0.001	0.001	6
Cu	GKW1	0.003	0.0000	0.007	0.003	4
	GKW7	0.003	0.0000	0.003	0.003	4
	GKW 10	0.003	0.0000	0.004	0.003	4
	GKW11	0.003	0.0000	0.003	0.003	4
	MLS 4	0.003	0.0000	0.005	0.003	9
	MLS 5	0.003	0.0000	0.003	0.003	16
	MW 1	0.003	0.0000	0.004	0.003	5
	MW 2	0.003	0.0000	0.009	0.003	6
	MW4	0.003	0.0000	0.004	0.003	5
	MW5	0.003	0.0000	0.005	0.003	6
Zn	GKW1	0.0025	0.0005	0.005	0.002	4
	GKW7	0.0025	0.0005	0.003	0.001	4
	GKW 10	0.0035	0.001	0.005	0.002	4
	GKW11	0.002	0.0000	0.002	0.002	4
	MLS 4	0.004	0.001	0.016	0.001	9
	MLS 5	0.002	0.0005	0.004	0.001	16
	MW 1	0.002	0.0000	0.003	0.002	5
	MW 2	0.003	0.0000	0.009	0.001	6
	MW4	0.002	0.0000	0.005	0.002	5
	MW5	0.002	0.0000	0.009	0.002	6
* Median Absolute Distribution						

Baseline concentrations were calculated by taking the median concentration of samples collected at all sampling times for both seasons and all depths for an individual site. Initial individual samples with concentrations below the instrument detection limit (pql) were assigned one half the pql. Median concentrations were computed for each component for each well. Samples with median values below the instrument detection limit (pql) were assigned a median value of the pql (Table 2). The baseline was defined to be the median of the median values calculated for individual sites (Table 3). Units are in mg/L. The true baseline may be lower than the pql; however, analytical constraints do not allow us to distinguish concentrations lower than the pql.

Table 3. Baseline Calculations 2000-2001 Data, mg/L					
	Median of Medians*	MAD**	Maximum	Minimum	N
As	0.005	0.0000	0.005	0.005	10
Cd	0.001	0.0000	0.001	0.001	10
Cu	0.003	0.0000	0.003	0.003	10
Zn	0.002	0.0000	0.003	0.002	10

* Baseline values (calculated from medians in Table 2). Units: ppm
 ** Median absolute deviation

e) Extent and magnitude of hazardous substances

i) Summary

In order to consider the aerial extent of contaminated soil water and groundwater, median concentrations of samples from all depths and all collection times were calculated for each site. These values were imported into ArcView and merged with GPS location data. The baseline values calculated for baseline groundwater wells were used to normalize concentration data for As, Cd, Cu and Zn so that all plots would have units of multiples of baseline. Pb was not included because nearly all samples had concentrations below the detection limit (pql = 0.010 ppm). Median concentrations for each site were plotted in units of concentration normalized to the calculated baseline. For example a value of 2.3 for Cu represents a concentration that is 2.3 times the calculated background (2.3 equals 0.0069 ppm Cu divided by the baseline 0.003 ppm). Figures 12-15 show the distributions of well sites with groundwater concentrations elevated above the calculated baseline for As, Cd, Cu and Zn, respectively. Figures 16-19 show the distributions of lysimeter sites with soil water concentrations elevated above the calculated baseline for As, Cd, Cu and Zn, respectively. Table 4 shows groundwater and soil water median concentrations from 2000 and 2001 seasons from which the multiples of baselines were computed for Figures 12-19.

All sites where one or more of the elements of interest has a concentration greater than two times the baseline were deemed contaminated. Figure 20 shows the distributions of well sites having concentrations of one or more of As, Cd, Cu and Zn greater than two times the baseline. Figure 21 shows the distribution of lysimeter sites having concentrations of one or more of As, Cd, Cu and Zn greater than two times the baseline.

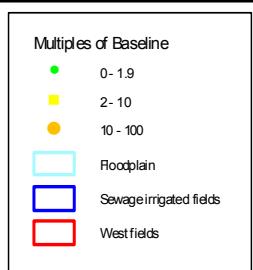
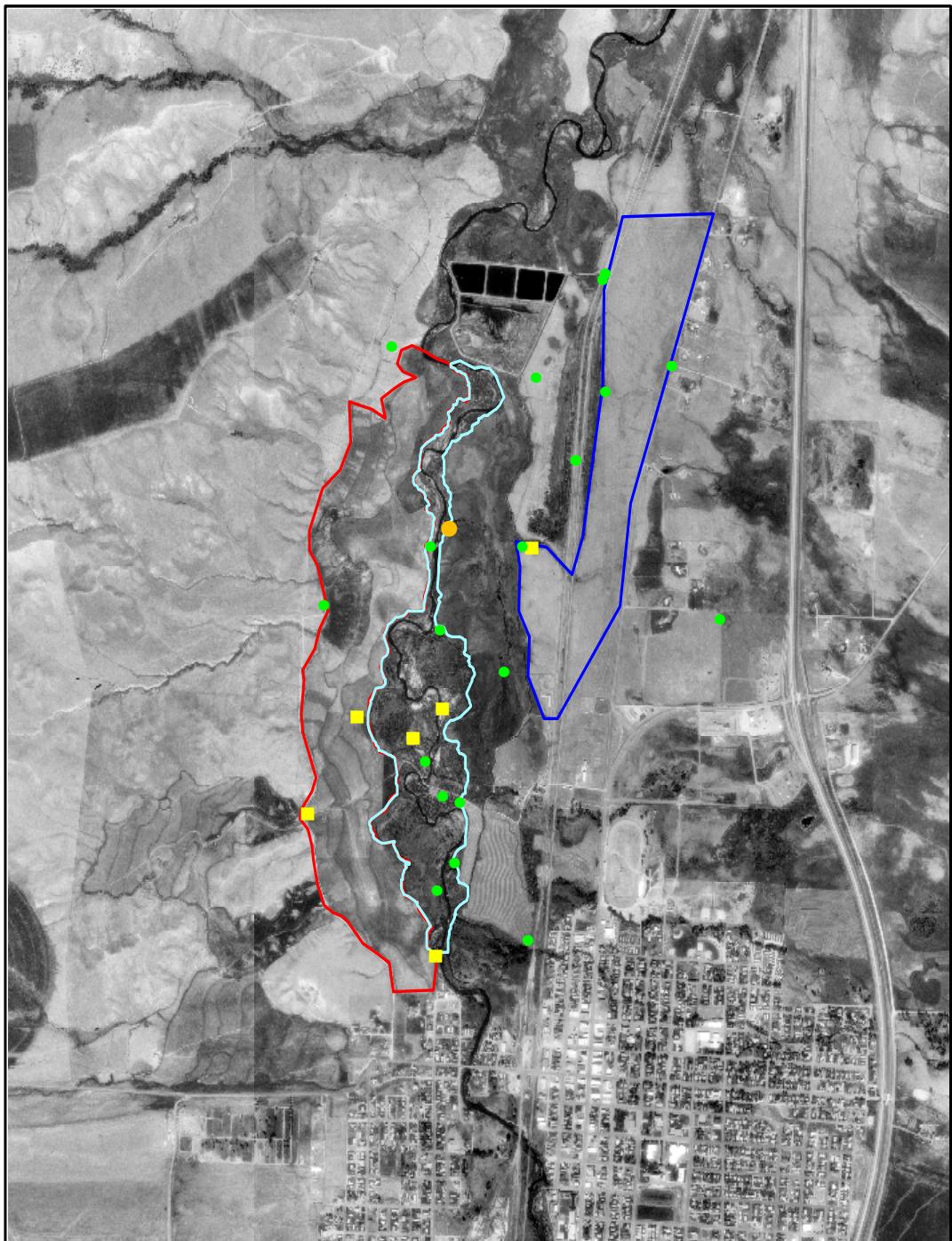


Figure 12. Wells: Arsenic
Multiples of Baseline (0.005ppm)
Grant Kohrs Ranch, 2000-2001 Field Season

500 0 500 Meters

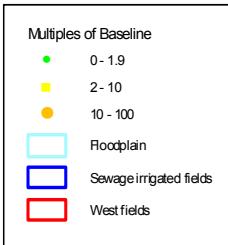
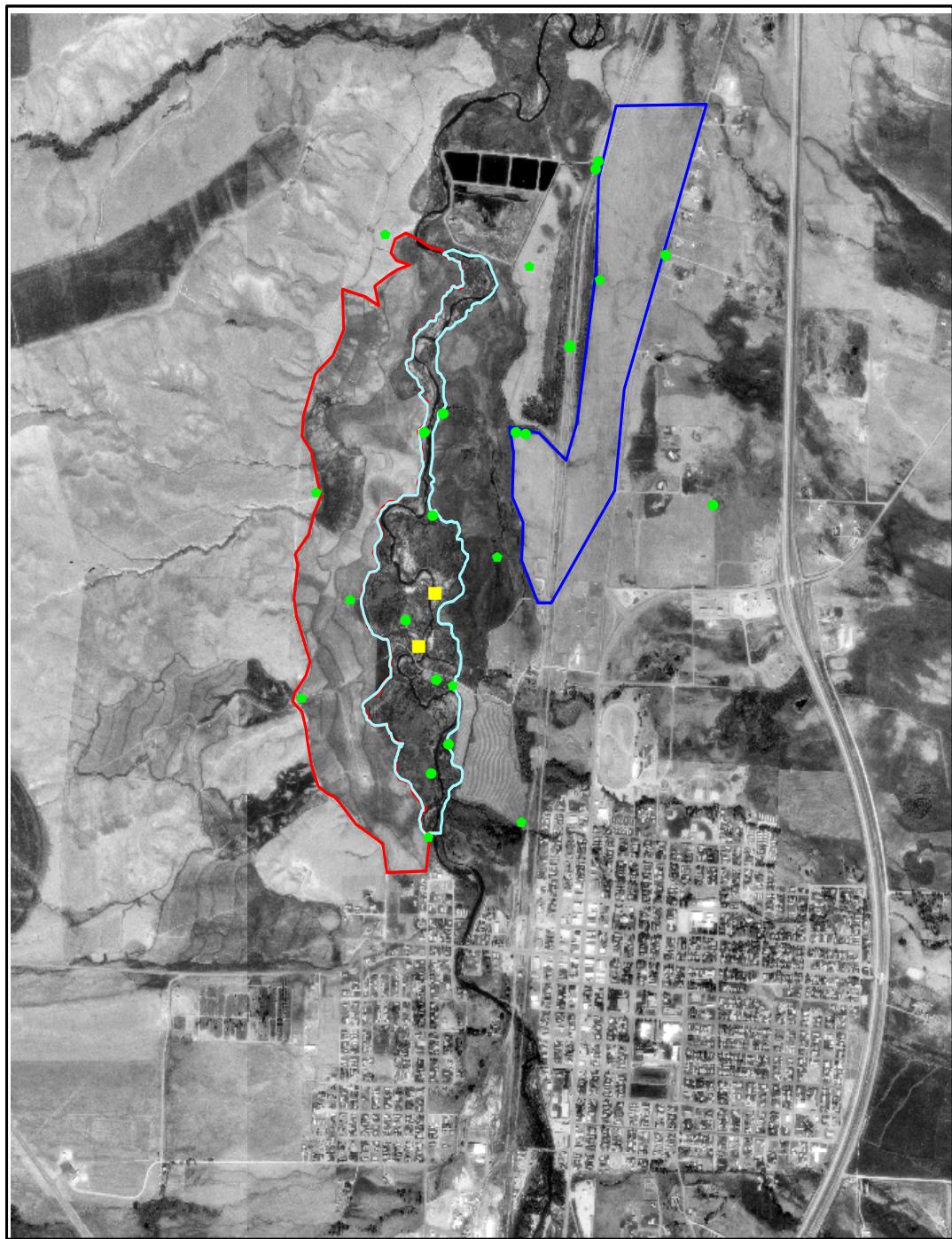


Figure 13. Wells: Cadmium
Multiple of baseline (0.001 ppm)
Grant Kohrs Ranch
2000-2001 Field Season

600 0 600 Meters

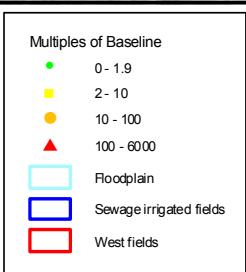
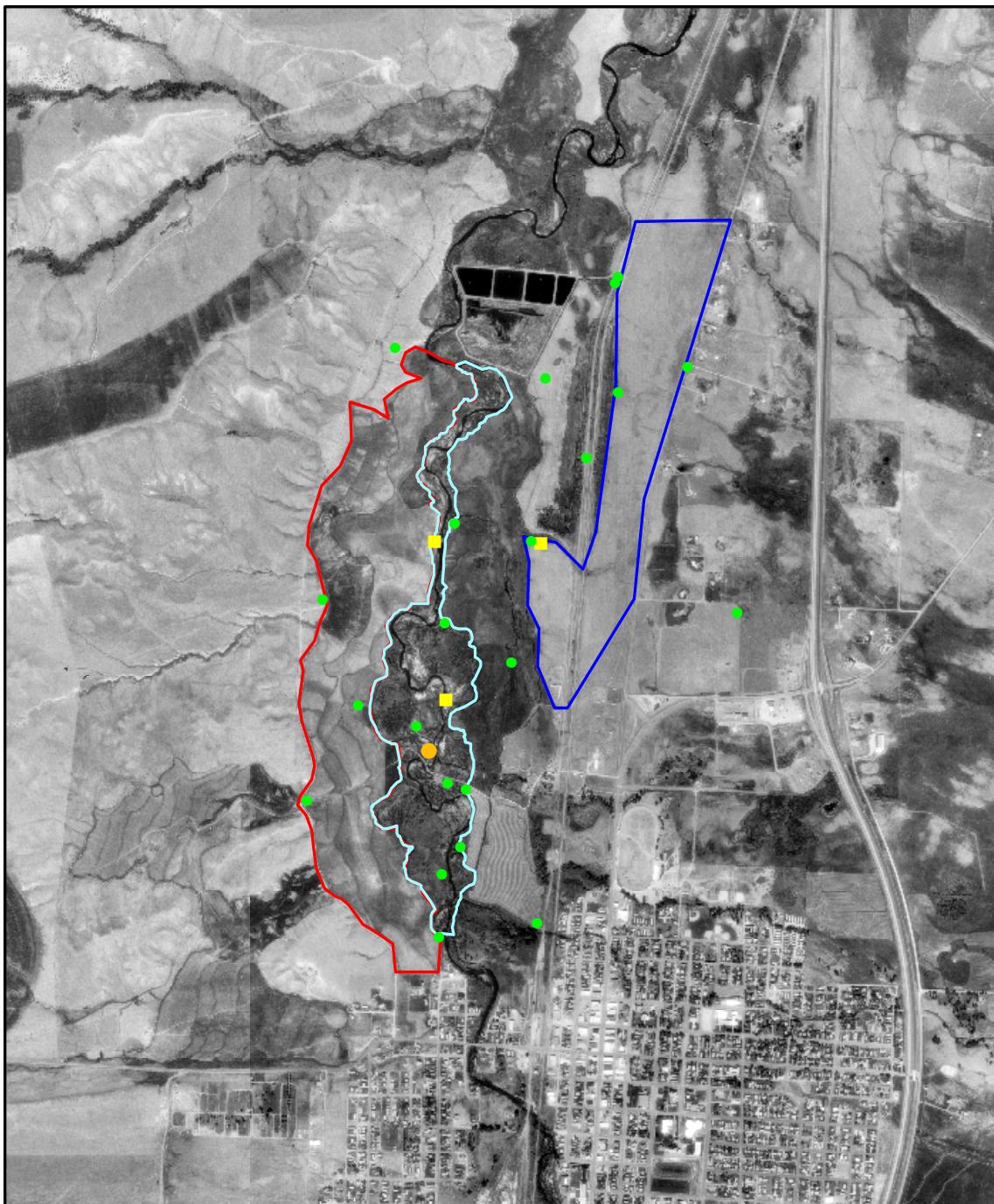


Figure 14. Wells: Copper
Multiples of baseline (0.003 ppm)
Grant Kohrs Ranch, 2000-2001 Field Season



600 0 600 Meters

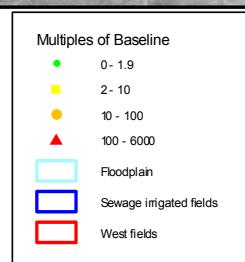
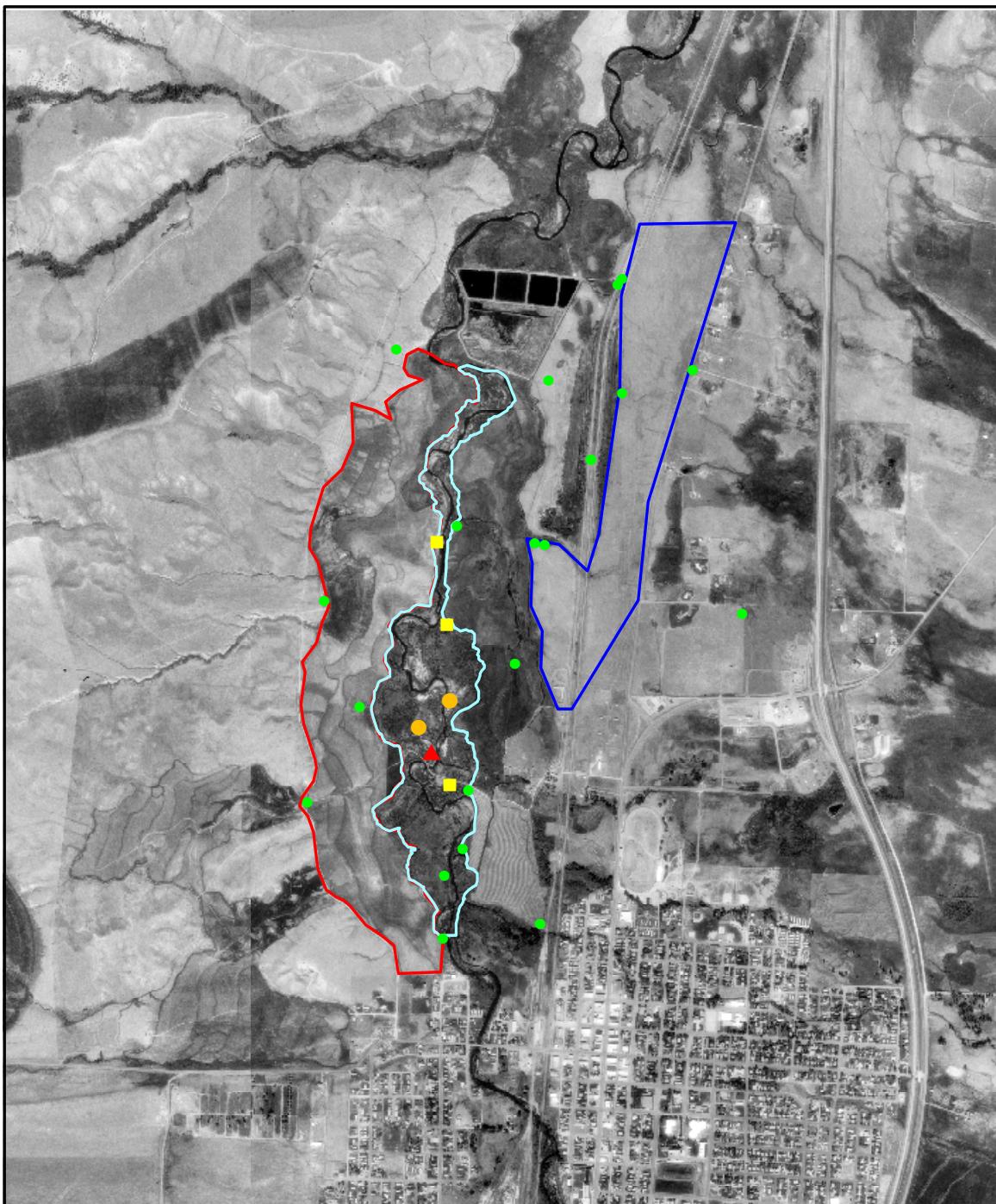


Figure 15. Wells: Zinc
Multiples of baseline (0.002 ppm)
Grant Kohrs Ranch, 2000-2001 Field Season



700 0 700 Meters

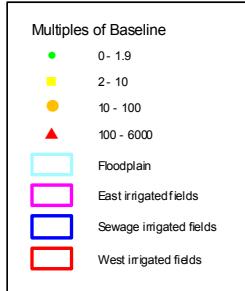
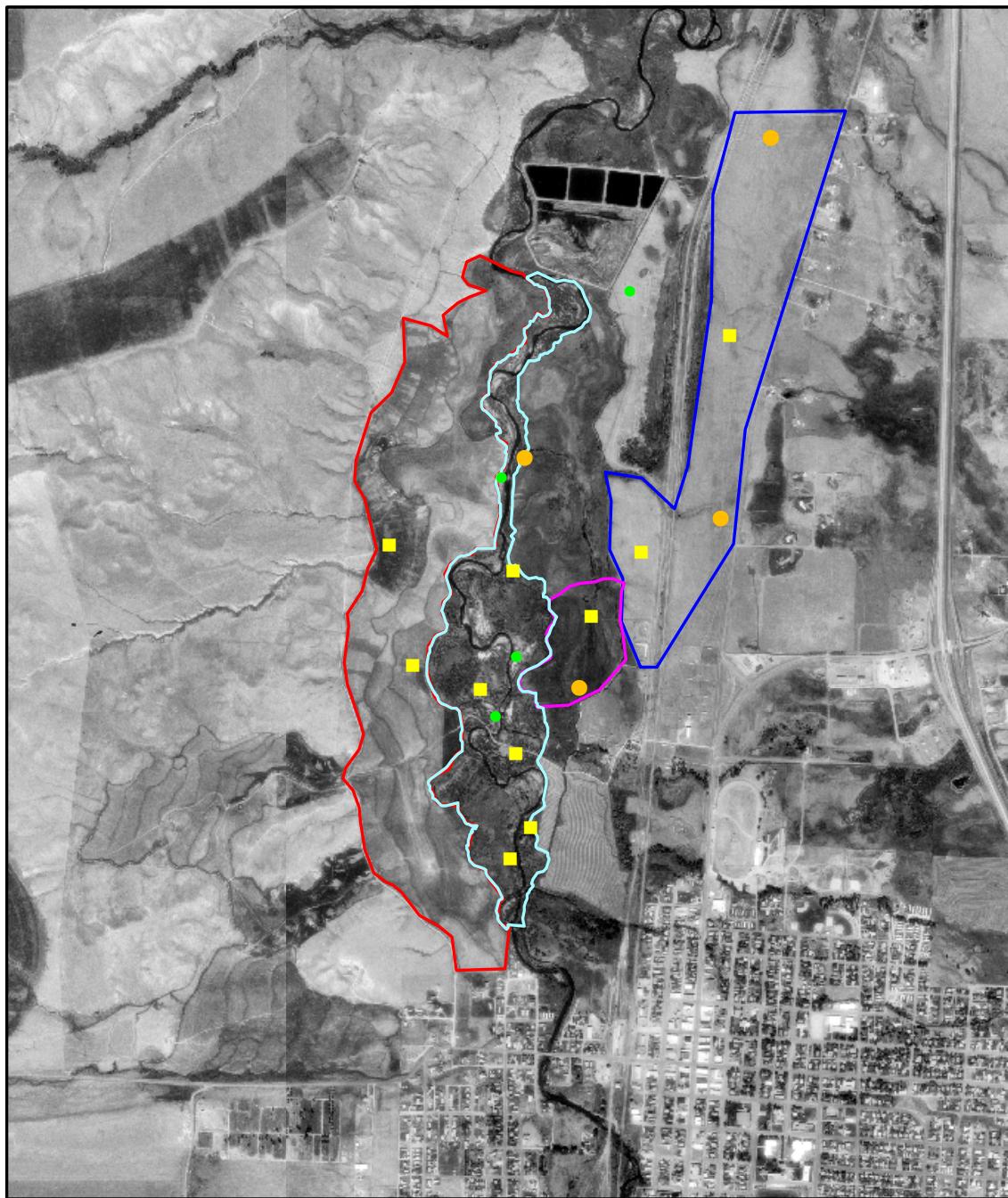
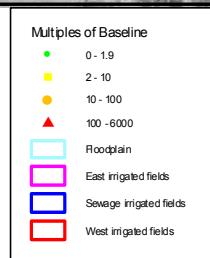
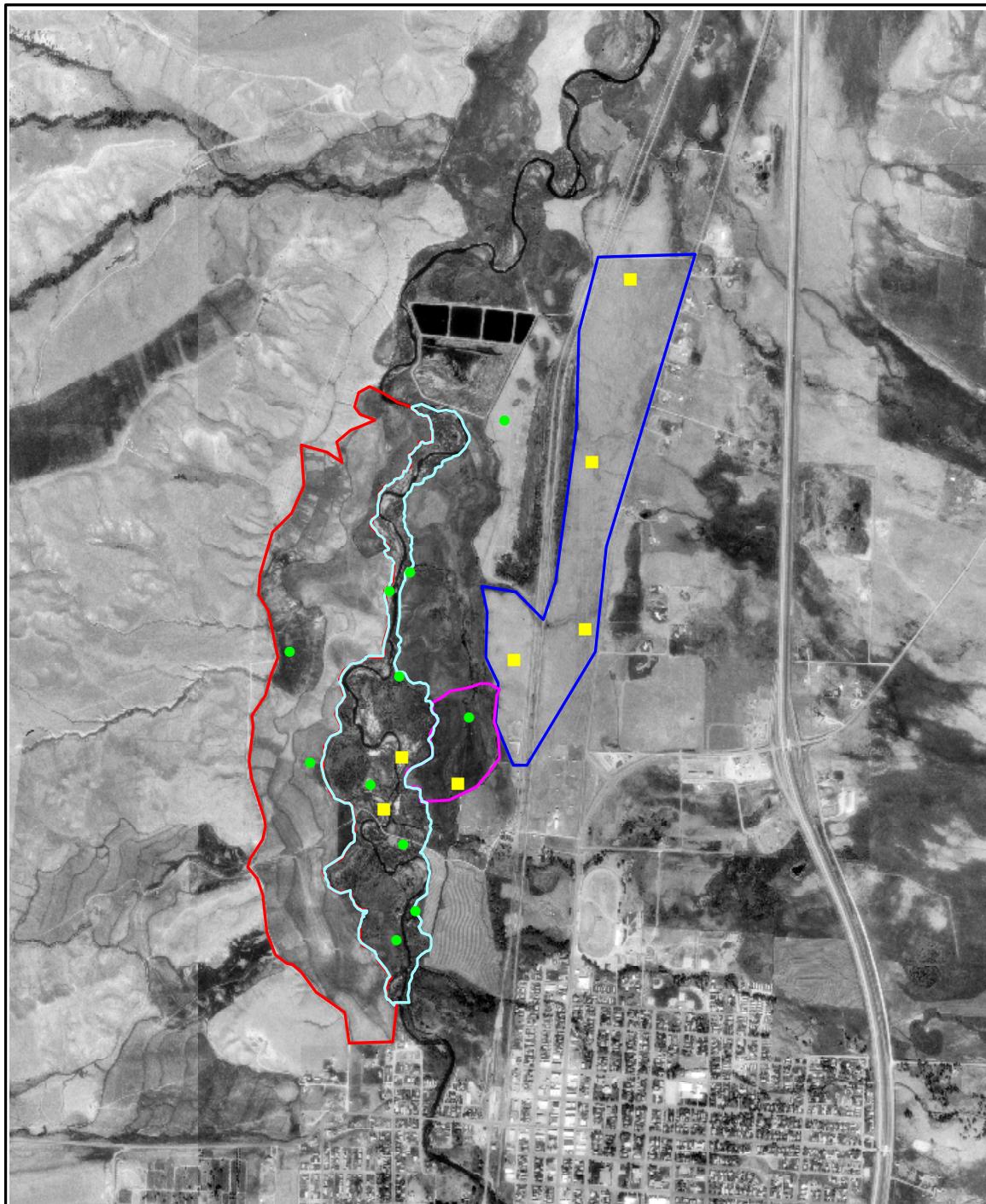


Figure 16. Lysimeters: Arsenic Multiples of Baseline (0.005ppm)
Grant Kohrs Ranch, 2000-2001 Field Season

500 0 500 Meters



600 0 600 Meters

Figure 17. Lysimeters: Cadmium
Multiple of baseline (0.001 ppm)
Grant Kohrs Ranch
2000-2001 Field Season

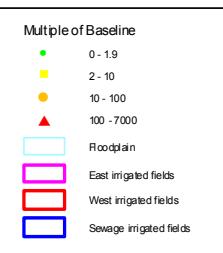
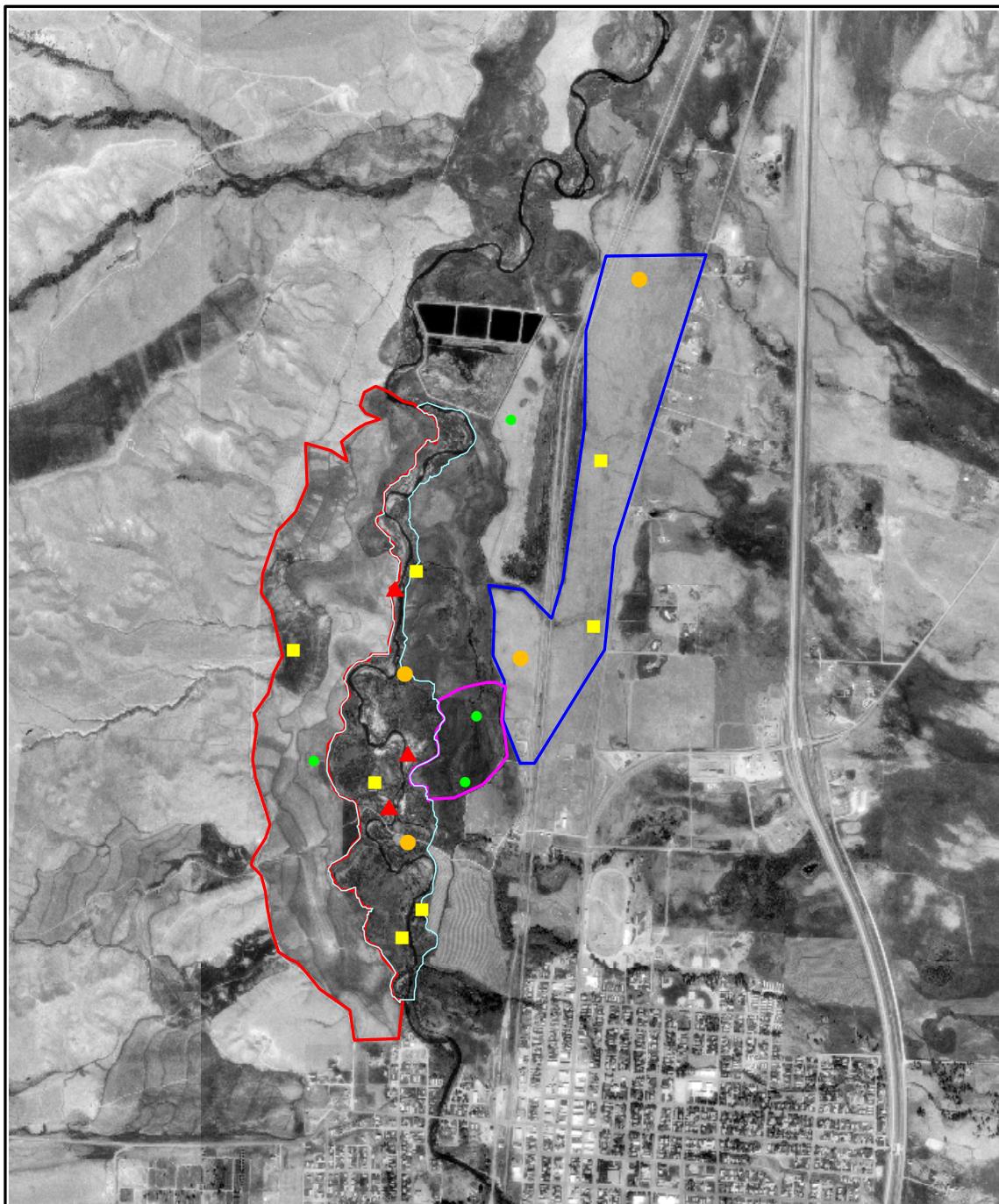
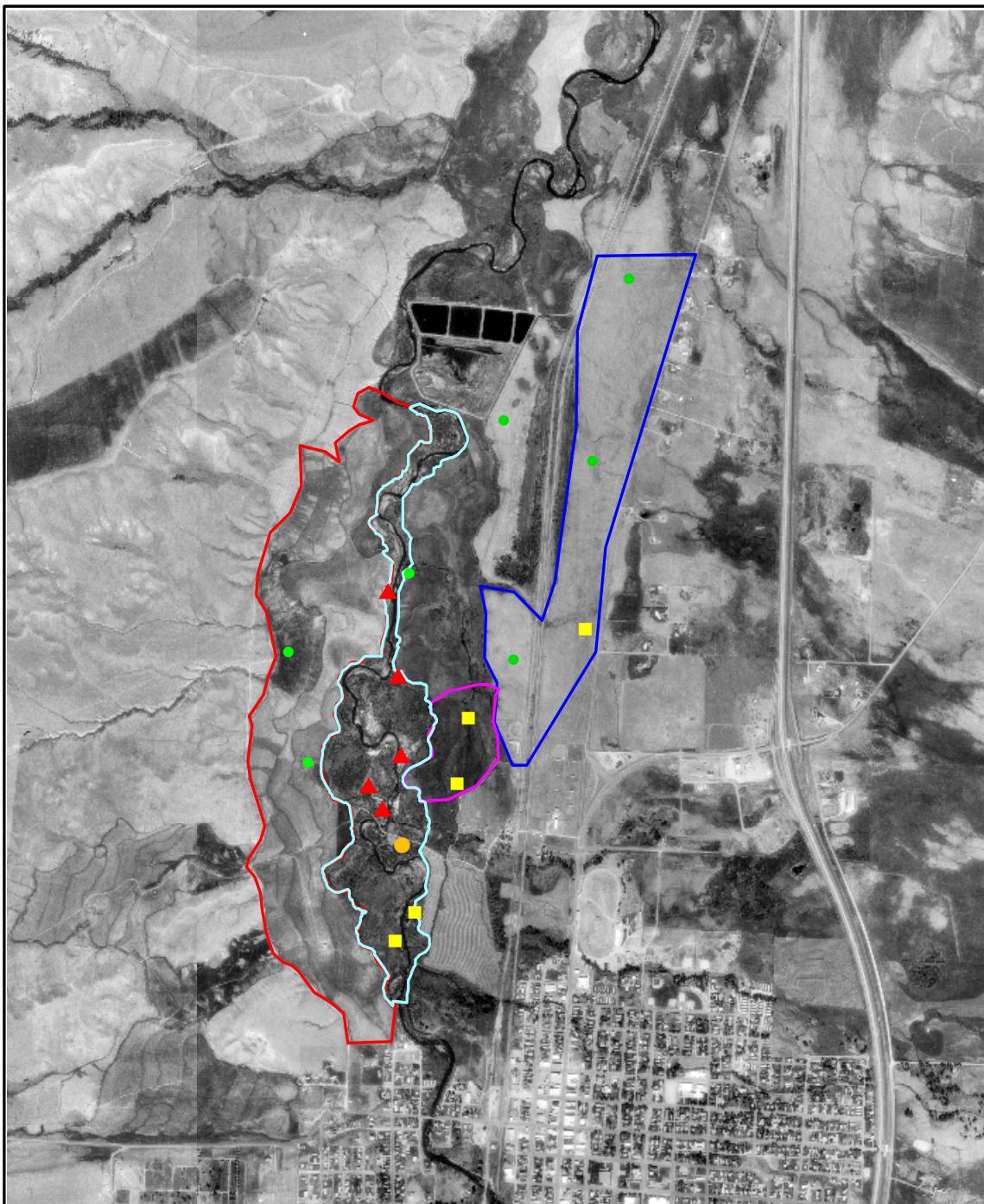


Figure 18. Lysimeters: Copper
Multiples of baseline (0.003 ppm)
Grant Kohrs Ranch, 2000 Field Season

600 0 600 Meters



**Figure 19. Lysimeters: Zinc
Multiples of baseline (0.002 ppm)
Grant Kohrs Ranch, 2000-2001 Field Season**



600 0 600 Meters

Table 4. Groundwater and soil water median concentrations of COCs for 2000 and 2001 field seasons.

Groundwater				
Wells	As (mg/L)	Cd (mg/L)	Cu (mg/L)	Zn (mg/L)
Baseline	0.005	0.001	0.003	0.002
GKM-1	0.007	0.001	0.003	0.002
GKM-2	0.005	0.001	0.003	0.004
GKM-3	0.010	0.001	0.003	0.161
GKM-4	0.005	0.001	0.009	0.015
GKM-5	0.009	0.002	0.031	0.223
GKM-6	0.005	0.001	0.003	0.003
GKM-7	0.027	0.002	0.020	0.026
GKM-8	0.005	0.001	0.003	0.007
GKM-9	0.061	0.001	0.003	0.002
GKW-1	0.005	0.001	0.003	0.003
GKW-2	0.007	0.001	0.003	0.003
GKW-3	0.014	0.001	0.003	0.003
GKW-4	0.014	0.001	0.003	0.003
GKW-5	0.018	0.001	0.004	0.003
GKW-7	0.005	0.001	0.003	0.003
GKW-8	0.005	0.001	0.003	0.002
GKW-9	0.005	0.001	0.003	0.003
GKW-10	0.005	0.001	0.003	0.003
GKW-11	0.005	0.001	0.003	0.002
MLS-3	0.016	0.001	0.007	0.003
MLS-4	0.005	0.001	0.003	0.003
MLS-5	0.006	0.001	0.003	0.003
MW-1	0.005	0.001	0.003	0.002
MW-2	0.005	0.001	0.003	0.003
MW-4	0.005	0.001	0.003	0.002
MW-5	0.005	0.001	0.003	0.002
Soil Water				
Lysimeter Nests	As	Cd	Cu	Zn
Nest 1	0.020	0.001	0.018	0.005
Nest 2	0.020	0.004	0.105	0.156
Nest 3	0.019	0.007	0.015	0.206
Nest 4	0.009	0.071	5.98	11.0
Nest 5	0.005	0.080	1.00	12.7
Nest 6	0.017	0.002	0.010	0.004
Nest 7	0.005	0.065	18.2	11.0
Nest 8	0.012	0.004	0.051	0.753
Nest 9	0.076	0.002	0.006	0.003
Nest 10	0.014	0.001	0.007	0.003
Nest 11	0.032	0.001	0.003	0.003
Nest 12	0.019	0.001	0.003	0.007
Nest 13	0.139	0.004	0.004	0.007
ANest1	0.225	0.006	0.055	0.003
ANest2	0.016	0.003	0.010	0.002
ANest3	0.196	0.005	0.025	0.007
BNest	0.029	0.002	0.031	0.003

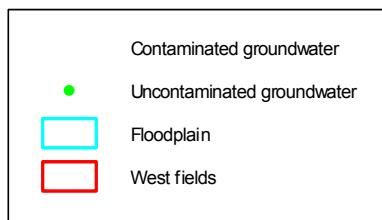
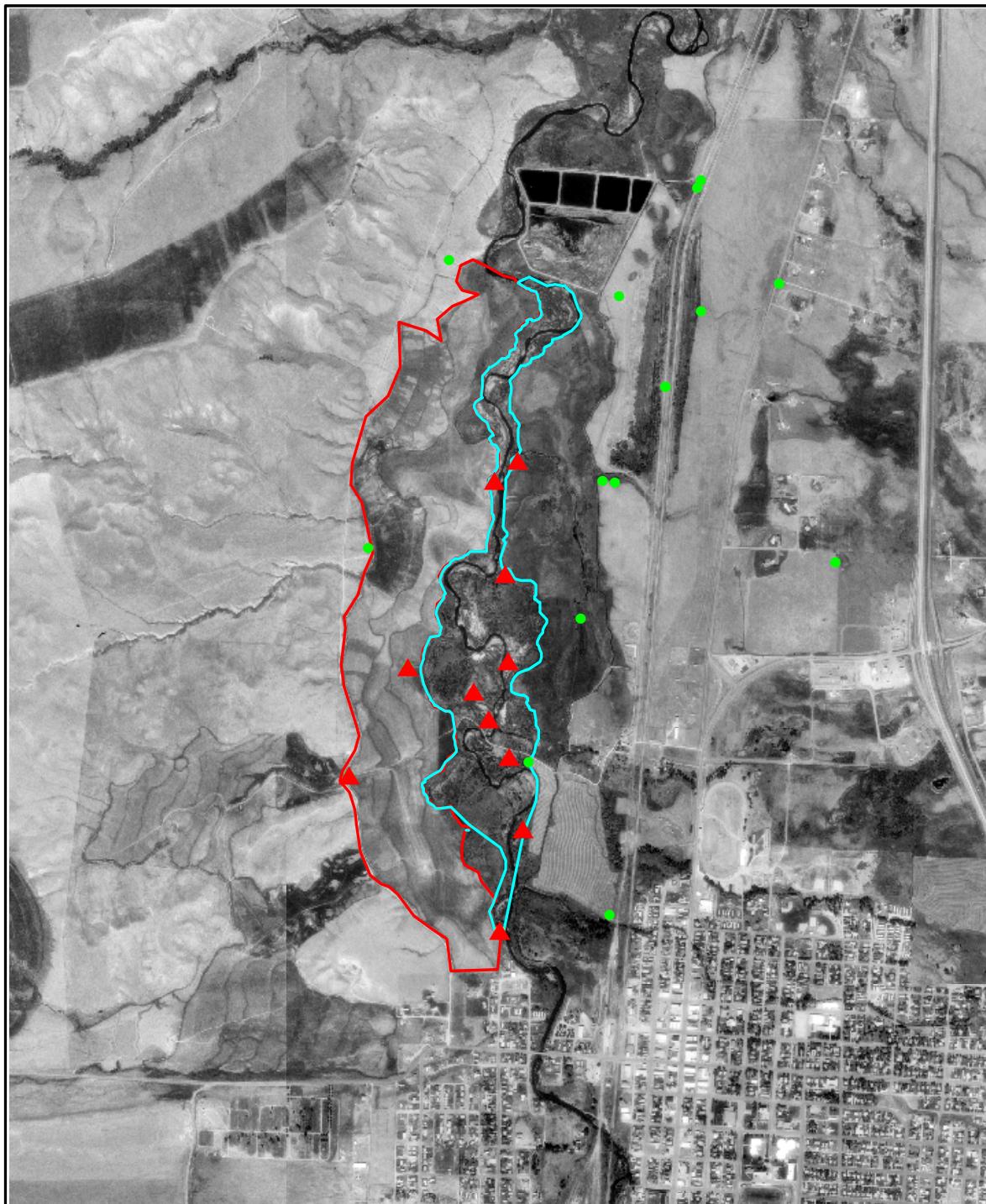
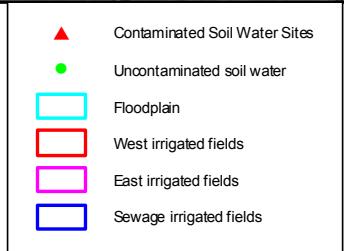
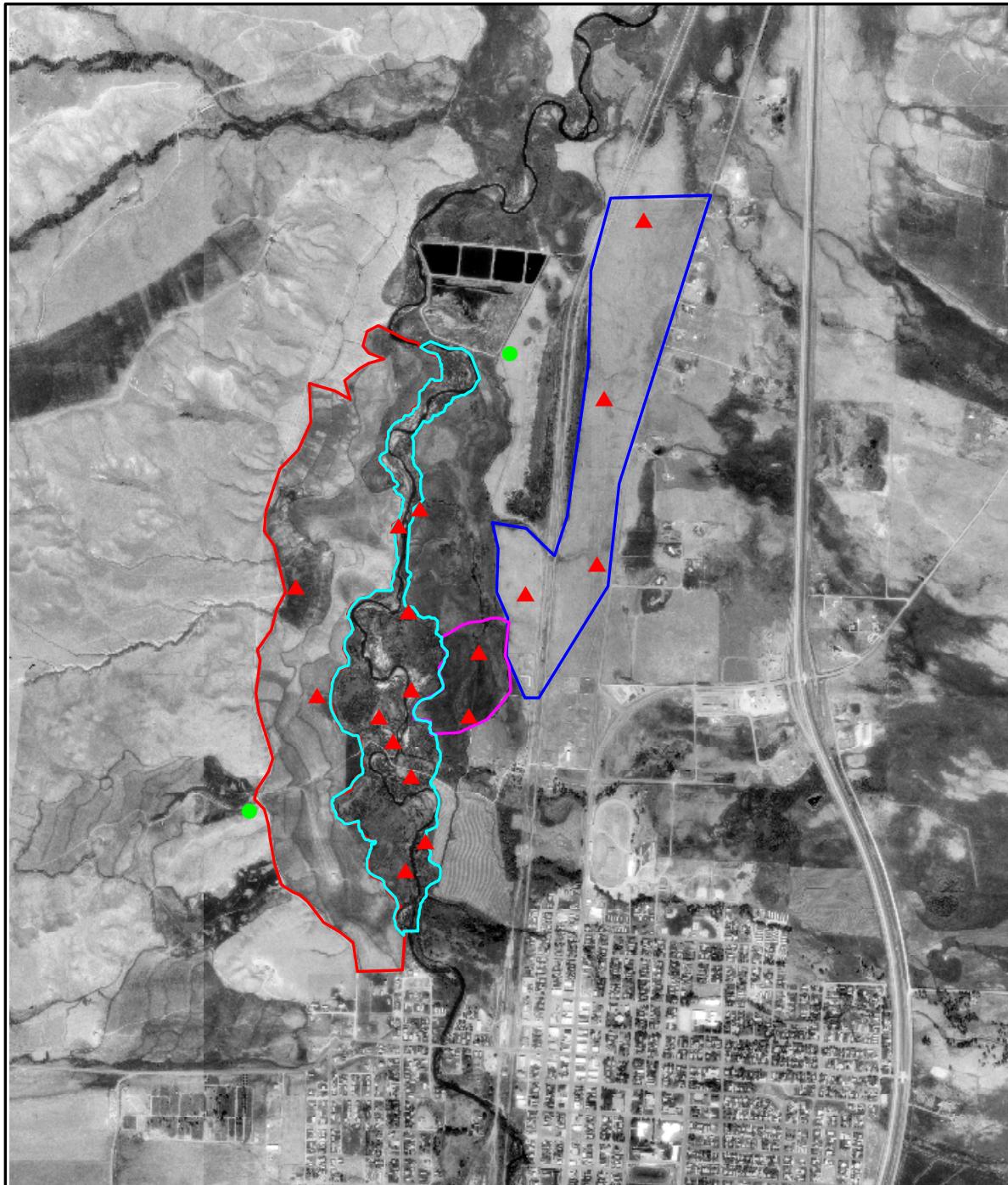


Figure 20. Wells: Composite
As, Cd, Cu and/or Zn above 2X baseline
Grant Kohrs Ranch, 2000-2001 Field Season

300 0 300 600 Meters





**Figure 21. Lysimeters: Composite As, Cd, Cu and/or Zn above 2X baseline
Grant Kohrs Ranch, 2000-2001 Field Season**

300 0 300 600 Meters



ii) Volume calculations

We chose to use a cutoff value of two times the baseline value for each of the elements as an indicator of soil water and groundwater contamination. These values encompass the variability of the data used in the baseline calculation.

Volumes of contaminated groundwater and soil water resources were calculated as follows:

- 1) Areas of contaminated groundwater for the floodplain, fields and benches were determined based on the distribution of contaminated water and the local geomorphology.
- 2) Areas of contaminated soil water were determined based on the distribution of contaminated soil water and the local geomorphology.
- 3) Depths of contaminated groundwater were determined by assessing the depth below the water table of contaminated groundwater.
- 4) Depths of contaminated soil water were determined by assessing the depth below land surface contaminated soil water.
- 5) Volumes of contaminated groundwater were then computed by multiplying contaminated area times depth times 0.20 (assumed specific yield).
- 6) Volumes of contaminated soil water were then computed by multiplying contaminated area times depth times 0.05 (assumed volumetric moisture content).

Groundwater Volume

The area of contaminated groundwater was determined using a composite map showing a red triangle where one or more median concentrations exceeded two times the baseline (See Figure 20). All wells in the floodplain were contaminated with the exception of GKM 1. Figure 20 highlights the contaminated floodplain area.

Groundwater beneath the east bench was not considered as exceedences of two times the baseline were only found at wells GKW-10 and GKW-7 and only for Zn. These wells were used to establish baseline conditions and represent variability in the data set.

Groundwater in wells located in the west irrigated fields was contaminated. Two wells, GKW-1 and GKW-2 located just outside of the irrigated field areas showed elevated As values, however, these concentrations did not exceed two times the background. Based on the wells located in the southern half of the west fields, it was assumed that groundwater beneath the entire west irrigated area was contaminated (See Figure 20). Irrigation water used on these fields contained As at about three times baseline.

To determine the depths of contaminated groundwater, depth values were normalized relative to the water table (Figures 22 and 23). For multi-level piezometers, the depth

below the water table was calculated by subtracting the water level from the sampling port depth (Figure 24).

Depths were then plotted against the times above baseline (multiple of baseline) for As, Cd, Cu and Zn as a composite. The maximum depth at which any one of As, Cd, Cu or Zn was greater than two times the baseline was considered depth of contaminated water. (Figure 25-27).

Areas impacted by arsenic were also calculated. Areas in which groundwater was above the proposed arsenic drinking water standard (10 ppb, this is equal to two times the baseline at GKR) were determined in the same manner as the composite impact areas (Figure 28).

Figure 22:

Illustration of how median groundwater depth below the water table was calculated for wells (water table above screened interval).

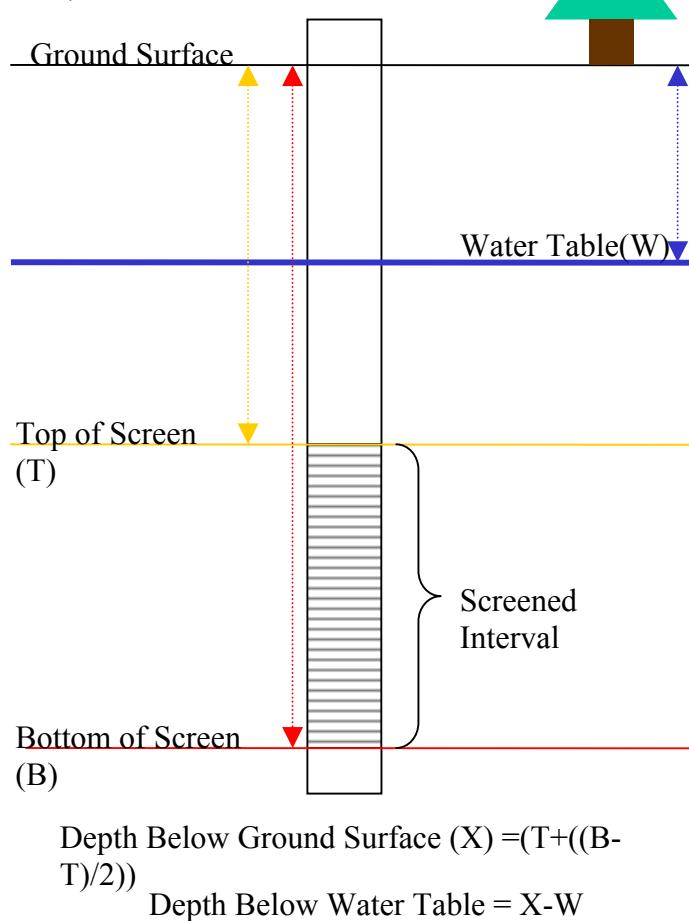
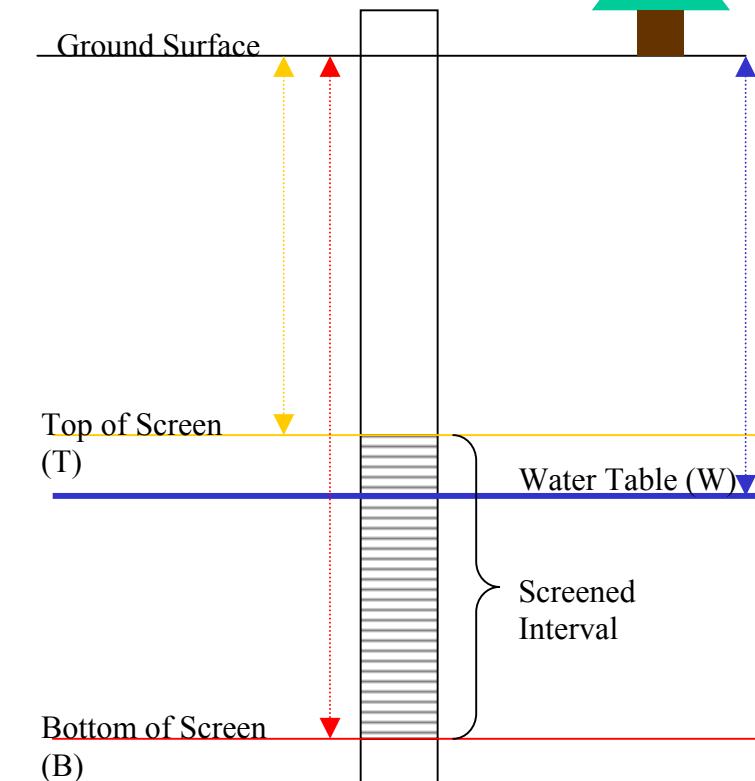


Figure 23:

Illustration of how median groundwater depth below the water table was calculated for wells (water table within screened interval).



$$\text{Depth Below Ground Surface (X)} = (W + ((B - W)/2))$$
$$\text{Depth Below Water Table} = X - W$$

Figure 24:

Illustration of how groundwater depth below the water table was calculated for multilevel piezometers.

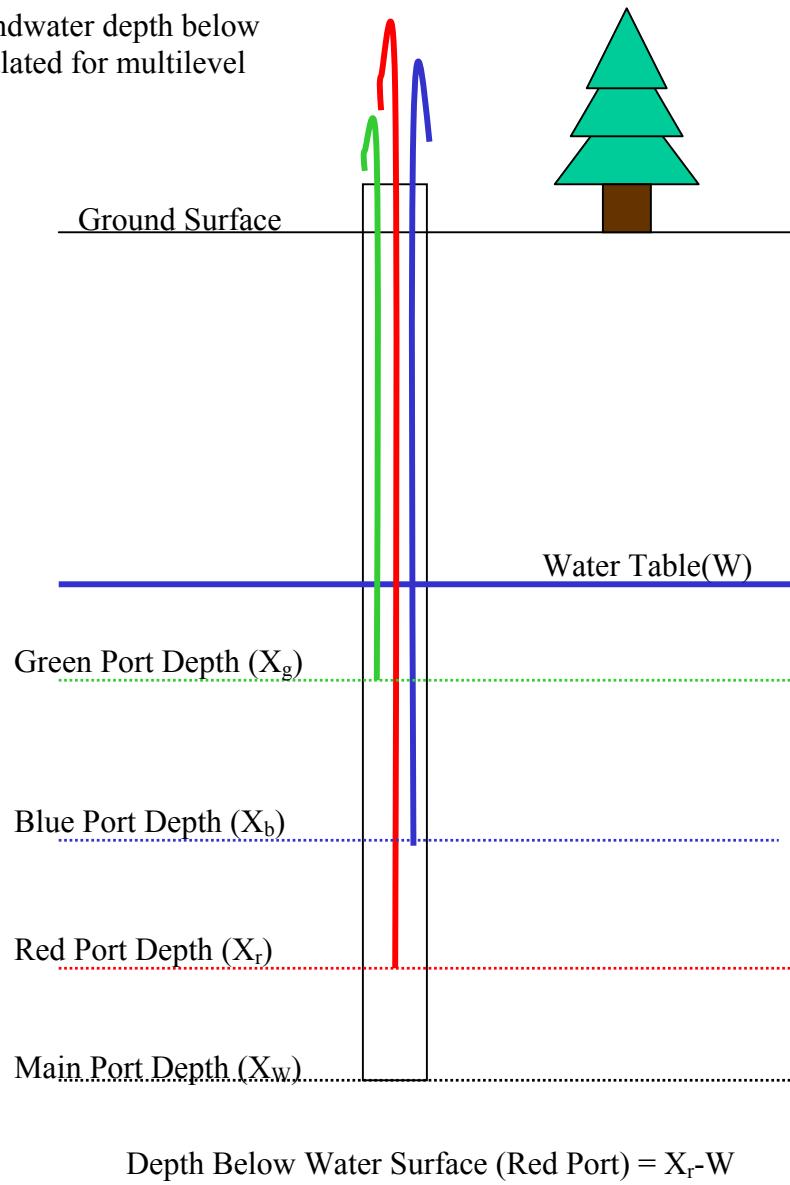


Figure 25. Depth below water table vs. contaminant multiples of baseline in groundwater in the west bench.

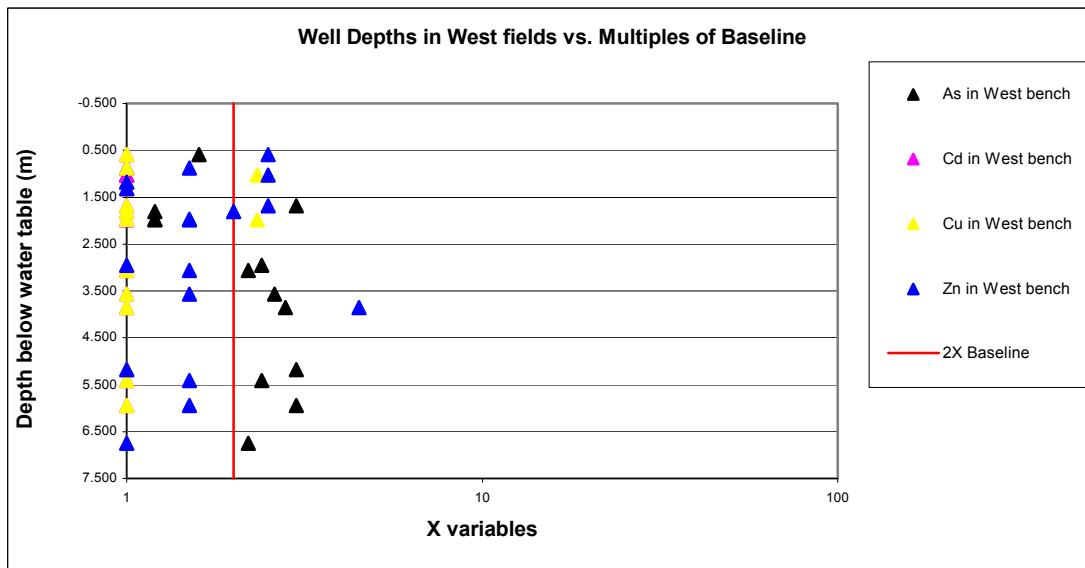


Figure 26. Depth below water table vs. contaminant multiples of baseline in groundwater in the floodplain.

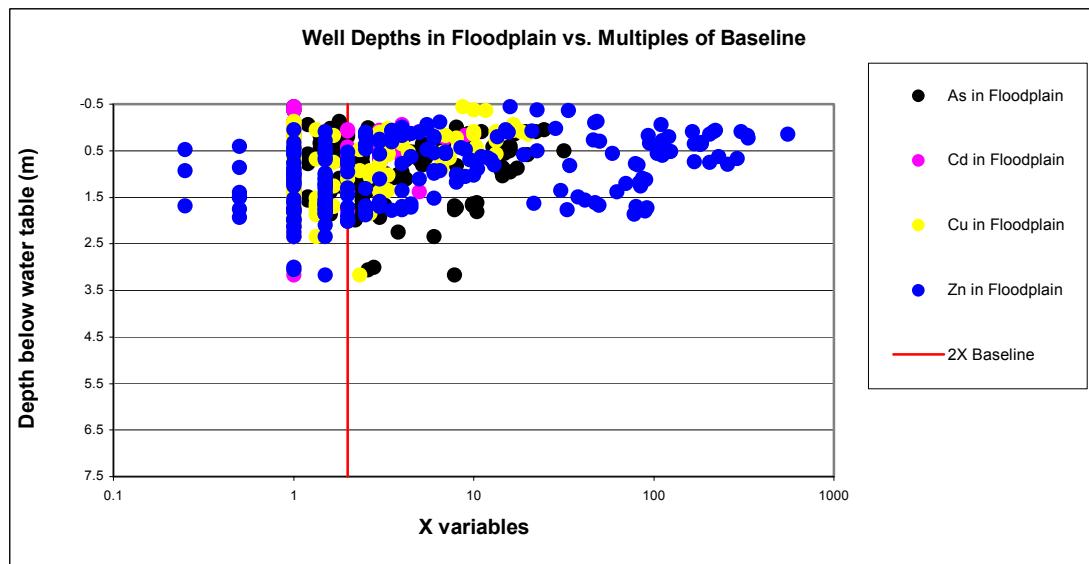
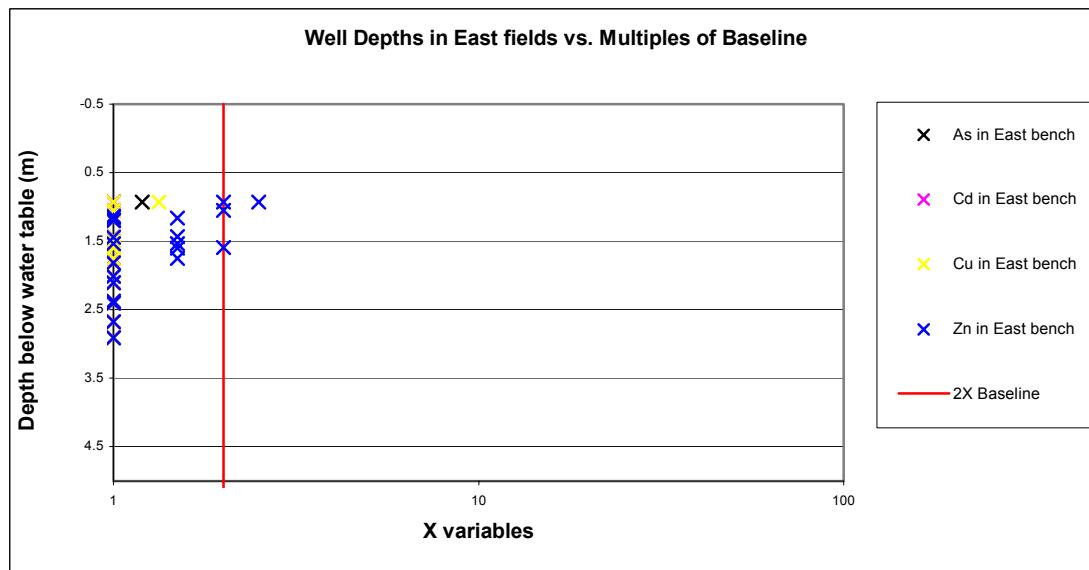
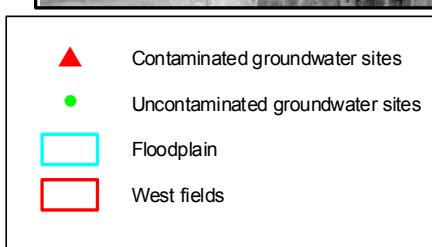
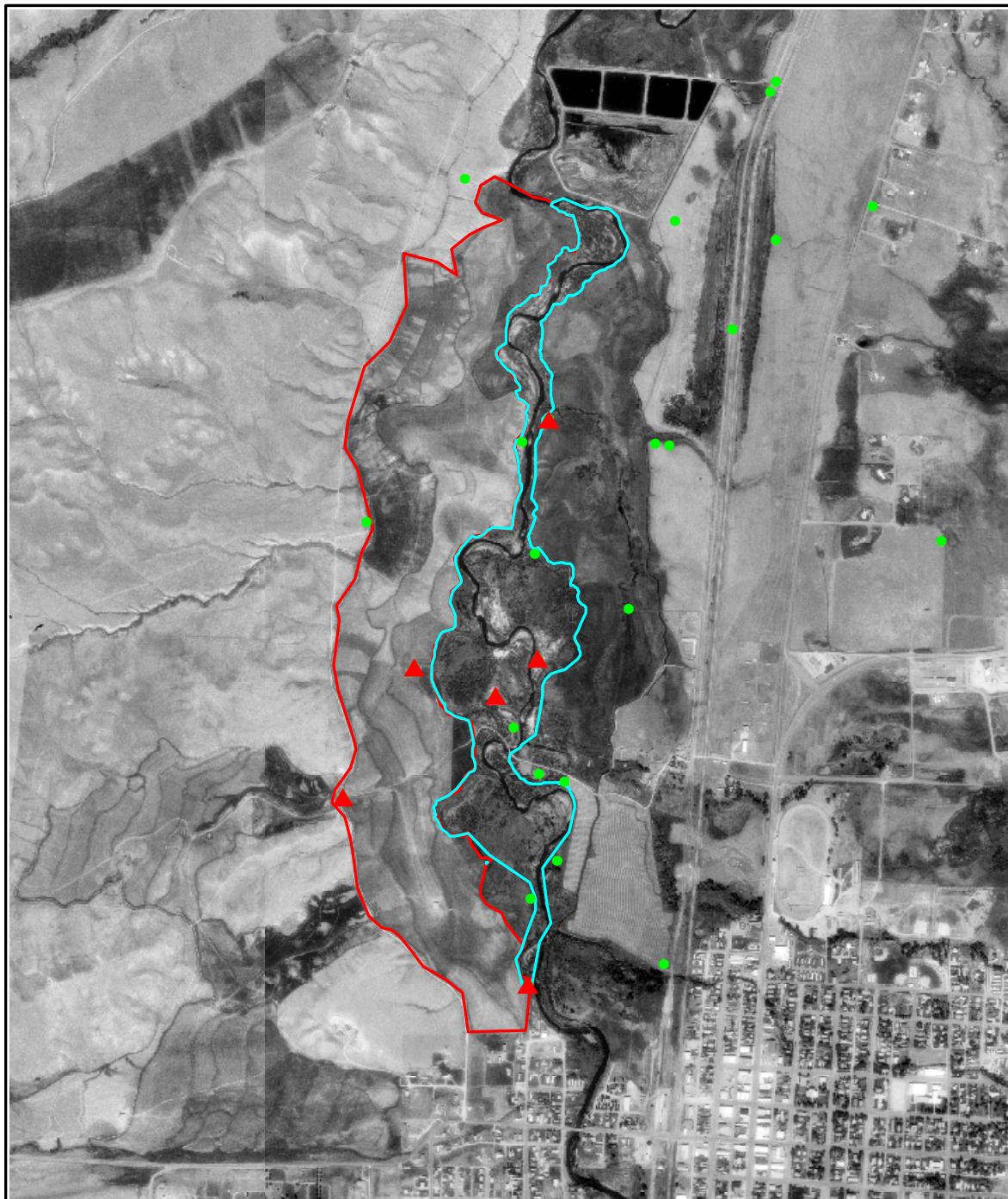


Figure 27. Depth below water table vs. contaminant multiples of baseline in groundwater in the east bench.





N
Figure 28. Wells: Median Arsenic Compared to Drinking Water Standard
Grant Kohrs Ranch, 2000-2001 Field Season

400 0 400 Meters

Soil Water Volume

The area of contaminated soil water was determined using a composite map showing a red triangle where one or more median concentrations of the site exceeded two times the baseline (See Figure 21). Lysimeters in the floodplain all were contaminated so the entire area of the floodplain was used for soil water calculations (See Figure 21). All of the sewage irrigated fields also showed contaminated soil water (Figure 18), so the entire area being irrigated with sewage effluent was used. The flood-irrigated areas were broken into east and west flood irrigated fields. Figure 21 shows that all of the nests in the flood irrigated fields are contaminated. The entire west field area was used for the impacted area for soil water because it is all flood irrigated. The area being flood irrigated on the east side of the floodplain was used as area for the east flood irrigated area (Figure 21).

Lysimeter depths were plotted against values representing multiples of baselines for As, Cd, Cu and Zn in Figures 29-31 . The maximum depth at which any one of As, Cd, Cu or Zn was greater than two times the baseline was considered depth of contaminated water (Figures 29-31).

Areas impacted by As (concentrations greater than 10 ppb) were determined for soil water (Figure 32).

Figure 29. Depth below land surface vs. contaminant multiples of baseline in soil water in the east and west flood irrigated fields.

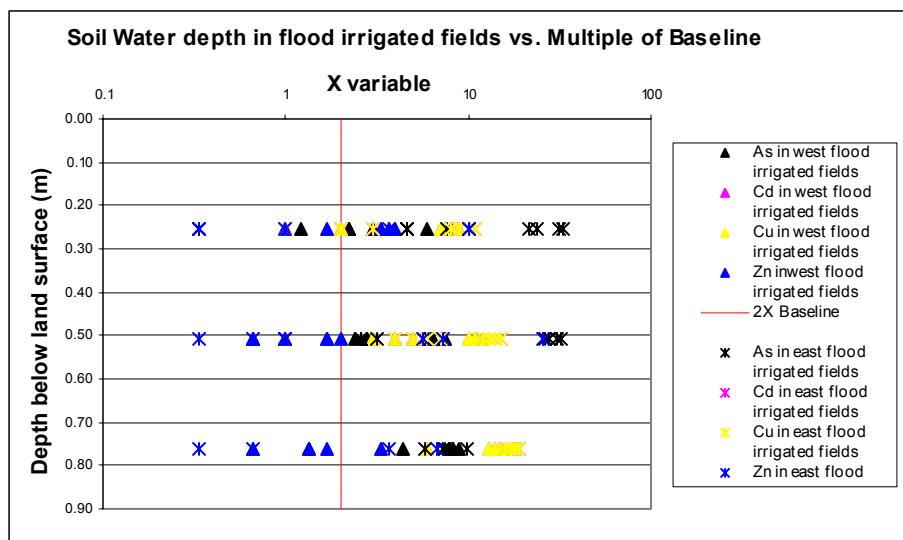


Figure 30. Depth below land surface vs. contaminant multiples of baseline in soil water in the floodplain.

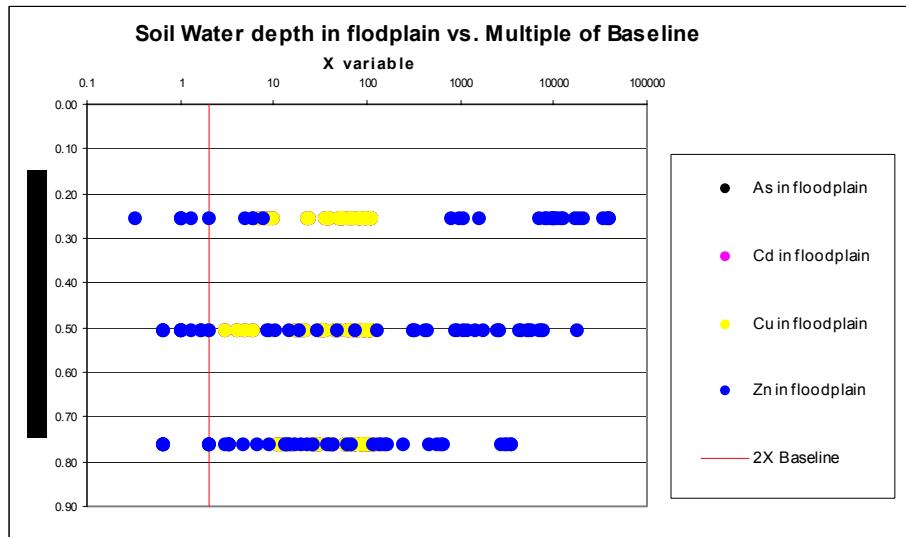
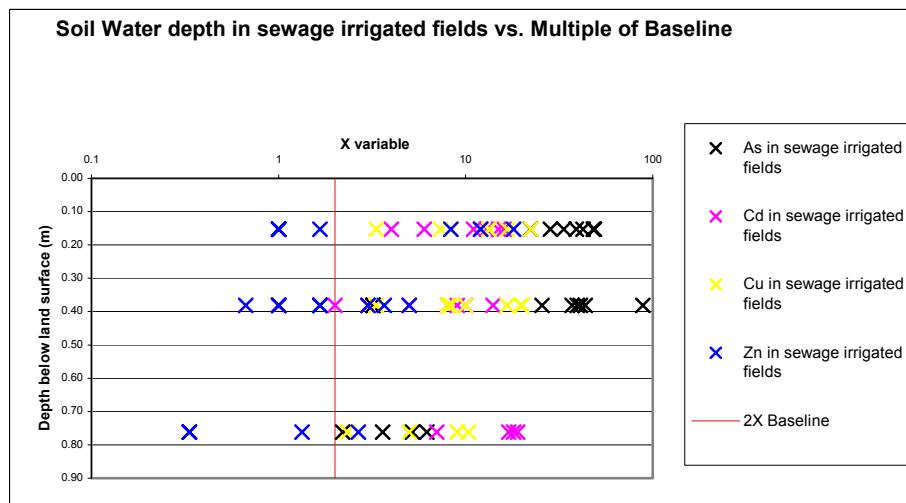


Figure 31. Depth below land surface vs. contaminant multiples of baseline in soil water in the sewage irrigated fields.



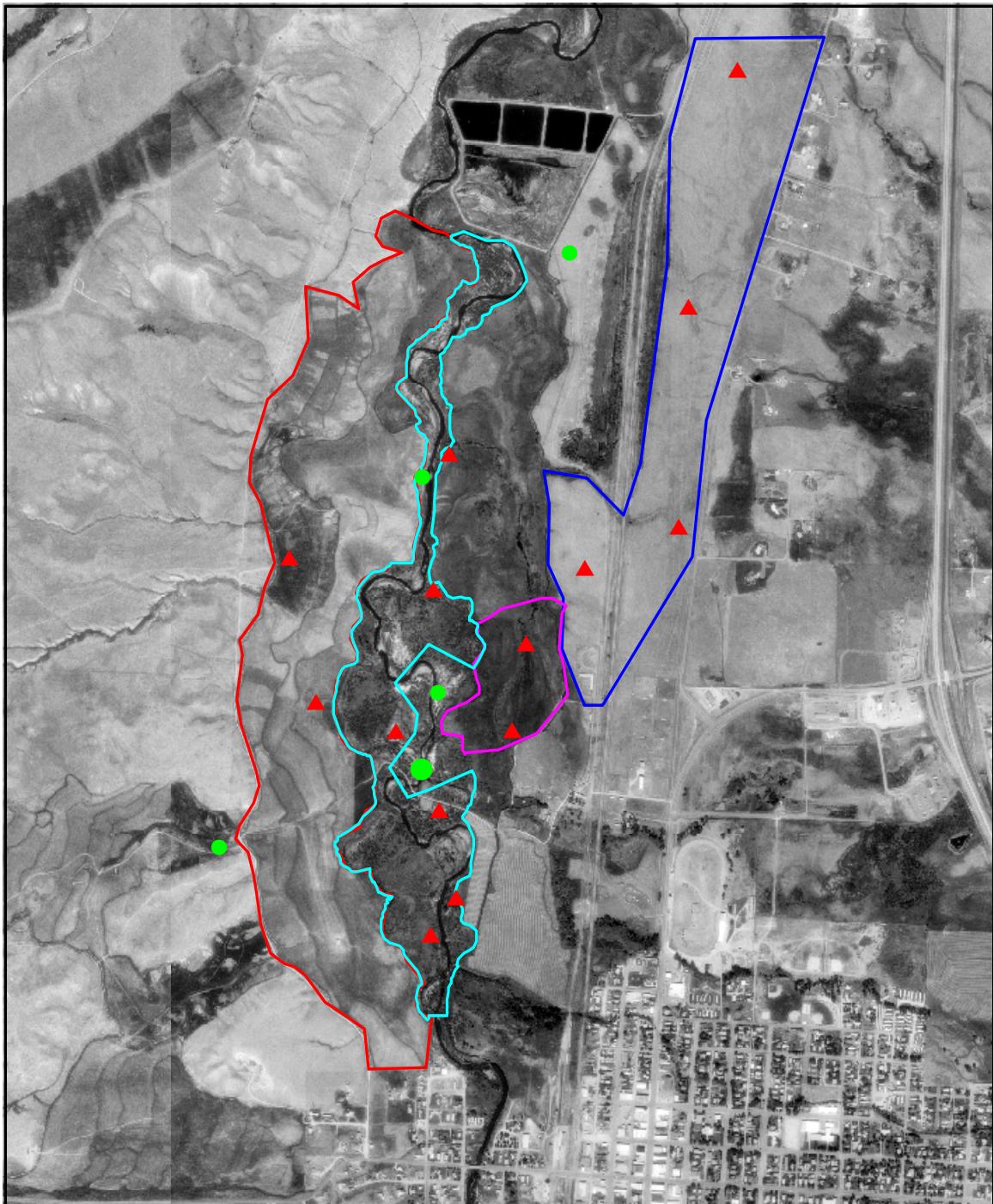


Figure 32. Lysimeters: Arsenic Compared to Drinking Water Standard (0.01 ppm) Grant Kohrs Ranch, 2000 Field Season

600 0 600 Meters



Volumes of contaminated groundwater and soil water are summarized below in Tables 4-7.

Table 5.

Soil Water: Composite Contamination				
(lysimeters)	Floodplain	East irrigated fields	West irrigated fields	Sewage irrigated fields
Depth(m)	0.76	0.76	0.76	0.76
Area(m^2)	544,000	125,000	993,000	648,000
Volume(m^3)*0.05	20,700	4,750	37,700	24,600

Table 6.

Soil Water: As Contamination (relative to drinking water standard 10ppb)				
(lysimeters)	Floodplain	East irrigated fields	West irrigated fields	Sewage irrigated fields
Depth(m)	0.76	0.76	0.76	0.76
Area(m^2)	466,000	125,000	993,000	648,000
Volume(m^3)*0.05	17,700	4,750	37,700	24,600

Table 7.

Groundwater: Composite Contamination				
(wells/multi-levels)	Floodplain	West fields	Sewage irrigated fields	
Depth(m)	3.16	6.75	1.5	
Area(m^2)	502,000	993,000	648,000	
Volume(m^3)*0.20	317,300	1,341,000	194,400	

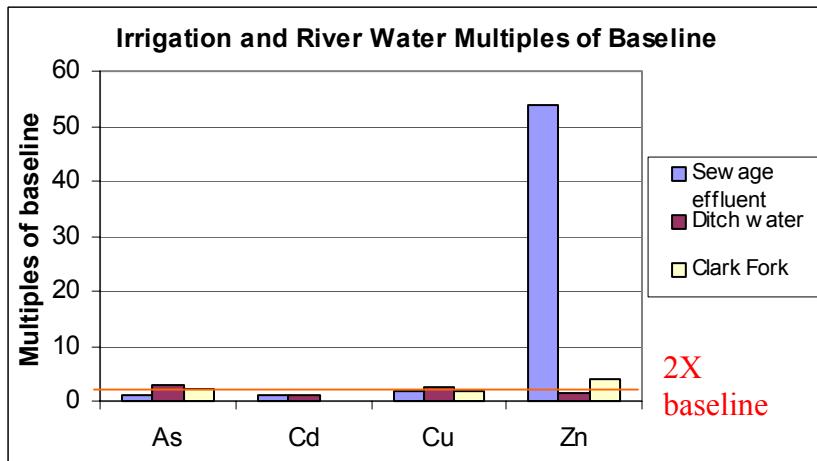
Table 8.

Groundwater: As Contamination (relative to drinking water standard 10ppb)				
(wells/multi-levels)	Floodplain	West fields	Sewage irrigated fields	
Depth(m)	3.16	6.75	-	
Area(m^2)	459,000	993,000	-	
Volume(m^3)*0.20	290,000	1,341,000	-	

Table 9.

	Contaminated water – Composite (m^3)	Contaminated water-As(m^3)
Soil Water	87,750	84,750
Groundwater	1,852,700	1,631,000
Totals	1,940,450	1,715,750

Figure 33. Irrigation and river water multiples of baseline.



4) Pathways

Hazardous substances have entered the soil water and groundwater from a number of sources. Smelting operations in the Butte and Anaconda area released large quantities of flue dust and soils in GKR have been impacted by air-fall (Moore, 2002). A second source of impact is the irrigation water delivered to the ranch from the Clark Fork River. Figure 33 shows that the water currently applied to the east and west fields exceeds two times the baseline for As and Cu. A third source of hazardous substances is mining wastes generated up-stream at Butte and Anaconda that is and was transported in the Clark Fork River. As a result, hazardous substances have been and are being deposited in the Clark Fork River floodplain. A fourth source is elevated Zn concentrations delivered in the sewage effluent being applied to the east bench fields.

The presence of air-fall impacted soils and the infiltration of natural recharge and impacted irrigation water provide a means for vertical transport of hazardous substances into and through the vadose zone. Lysimeter results show soil water is impacted in all geomorphic areas to depths of over 30-inches. This supports release of hazardous substances from the soils and continued transport to the underlying water table. The soil water gradients during the summer study period show a general drying at the surface, however, deeper zones maintain a relatively steady matrix potential. Earliest spring 2001 data show low soil matrix potentials at 6-inches suggesting the potential for downward movement during the spring (Figure 7). Irrigated field areas also showed downward gradients immediately after irrigation.

Highest concentrations of hazardous substances are found in the soil water and lower concentrations usually occur in the underlying groundwater (Figures 9 and 10). The presence of a decreasing geochemical gradient also supports the soil to groundwater pathway.

Transport rates through the vadose zone are controlled by the geologic material, unsaturated hydraulic conductivity and the gradient. Using the matrix potential of soils located between 12 and 24 inches below land surface, the range of matrix potential is about -15 to -30 centibars (-137 to -274 cm) during the summer months. Based on this range of values, an estimate for the unsaturated hydraulic conductivity for a typical sand rich soil is about 10^{-4} cm/sec or 0.28 ft/d (Fetter, 2001). Assuming moisture conditions are near steady state at a volumetric moisture content of 0.05, soil water would move vertically at about 5.6 ft/d. In areas dominated by clays, unsaturated hydraulic conductivities would most likely be in the range of 10^{-6} cm/sec or 0.0028 ft/d and vertical velocities about 0.056 ft/d.

Assuming a vertical soil water velocity in the sand and gravel dominated east bench of 5.6 to 0.56 ft/d and a water table depth of 10 to 20 ft, natural recharge and irrigation water would reach the water table in 1.8 to 36 days. Irrigation water applied on the fine-grained west side benches (velocity about 0.056 ft/d) may reach the 30 ft deep water table at the western upland boarder in a period in excess of 500 days. Areas with shallower water tables would experience recharge at earlier times. The finer-grained floodplain system would see snow melt and precipitation recharging the water table at about 90 days. These estimated travel times would be greatly impacted by the moisture distribution within the vadose zone over time and the corresponding hydraulic conductivity values. They would also be dependent on the migration of recharge water below the soil depth at which water is drawn back to the surface (most likely at 12-inches or less at this site).

Transport of hazardous substances in the groundwater systems of GKR is dependent on the hydraulic gradient, effective porosity and hydraulic conductivity of the unconsolidated sediments. The hydraulic conductivity values derived from slug test show values are similar for geomorphic settings (Table 1, Bouwer and Rice, 1976). Assuming a hydraulic conductivity value of 22 ft/d for the west fields and 42 ft/d for the east bench, an effective porosity of 0.20, and hydraulic gradients of 0.005 for the east bench and 0.004 for the west fields (computed from Figure 4), groundwater velocities would be 0.4 ft/d in the western area, and 1.1 ft/d in the eastern portion of GKR. Based on these values, groundwater travel along a 3300 ft flow path from the park boundaries to the Clark Fork River would take between 3000 and 8000 days.

Groundwater Discharge to Clark Fork River

Groundwater flows from the uplands, through the floodplain area, and discharges into the Clark Fork River (Figures 3 and 4). Based upon the characterization done in this study, a portion of this groundwater discharge is contaminated by arsenic and metals. The volume of contaminated groundwater discharging to the Clark Fork River within the GKR was calculated using standard groundwater flow equations. An average hydraulic conductivity of 34 ft/d was used to represent the floodplain sediments (Table 1). Using the potentiometric map from December 2000 (Figure 4), a gradient value of 0.003 was computed for the floodplain area. The cross sectional area through which groundwater discharge occurs was computed for each side of the river as the length of the river, 3700 m (Figure 20), times the depth of impacted groundwater (3.16 m, Figure 26). Applying Darcy's Law, the daily flux of contaminated groundwater into the stream is approximately $728 \text{ m}^3/\text{d}$.

References

- Bouwer, H. and R.C. Rice, 1976. A slug test method used for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, *Water Resources Research*, vol.12, n. 3, pp. 423-428.
- Dodge, K.A., M.I. Hornberger, and C.P.C. David. 2000. Water Quality, Bed-Sediment, and Biological Data (October 1999Through September 2000) and Statistical Summaries of data for Streams in the Upper Clark Fork Basin, Montana. USGS Open-File Report 01-379.
- Fetter, C.W. 1999. *Contaminant Hydrogeology*. Upper Saddle River, New Jersey: Prentice Hall, 500pp.
- Moore, J.N, B. Swanson, and C. Wheeler. October 2002. Geochemistry and Fluvial Geomorphology Report, A Report to the Grant Kohrs Ranch National Historic Site. University of Montana.
- Waterloo Hydrogeologic inc, 2001. *Aquifer Test*. Ontario, Canada.
- Western Region Climate Center, 2001, Montana climate summaries for Deer Lodge 3W weather station, Western Climate Center, retrieved August 7, 2001 from World Wide Web.
<http://www.wrcc.dri.edu/summary/climsmt.html>.

Water Resource Characterization Report
2000 and 2001 Field Seasons

APPENDIX A

APPENDIX A – Water Resources

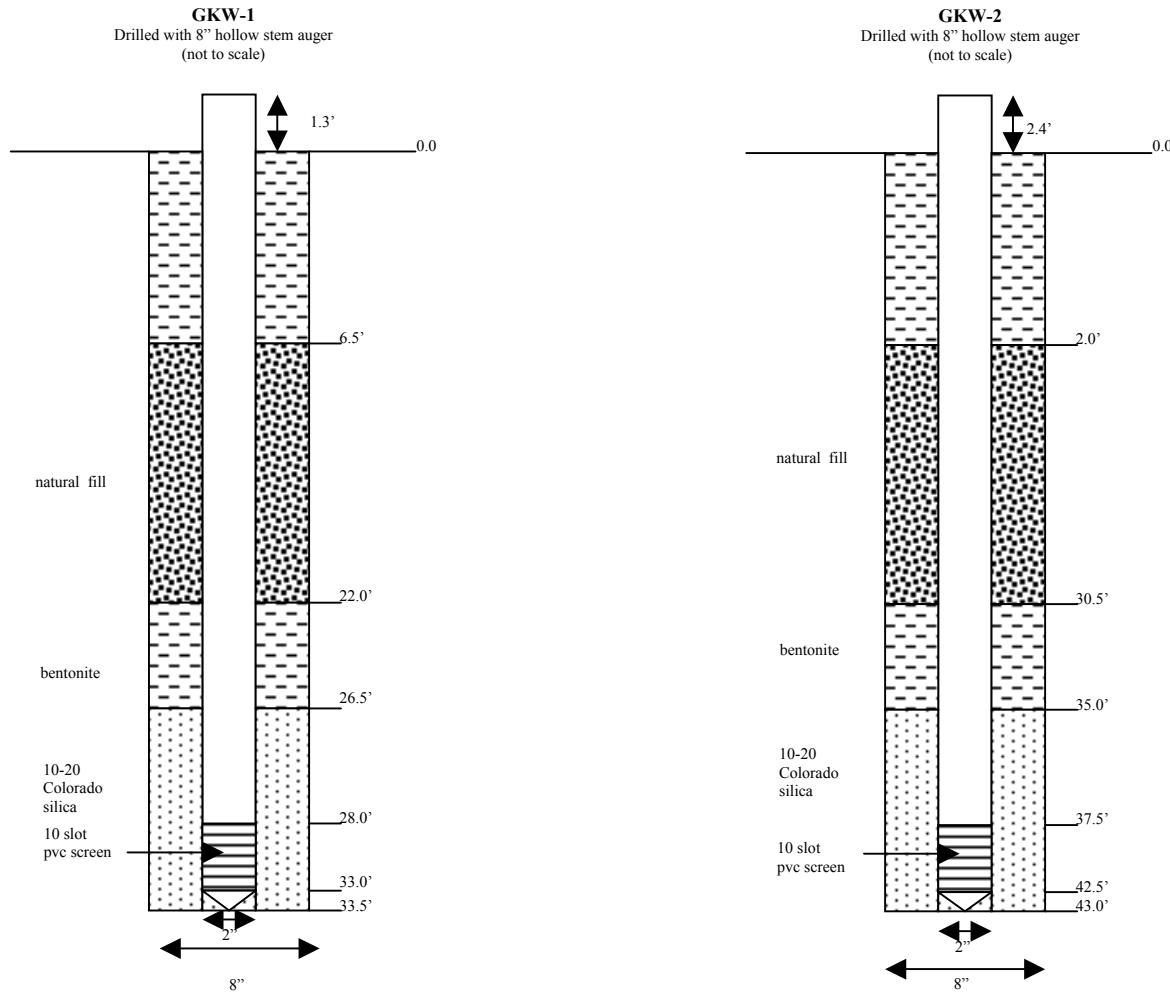
A.1 Field Instrumentation Installation Information and Diagrams

Tables contain information pertaining to the installation of monitoring wells, multi-level piezometers, tensiometers and lysimeters.

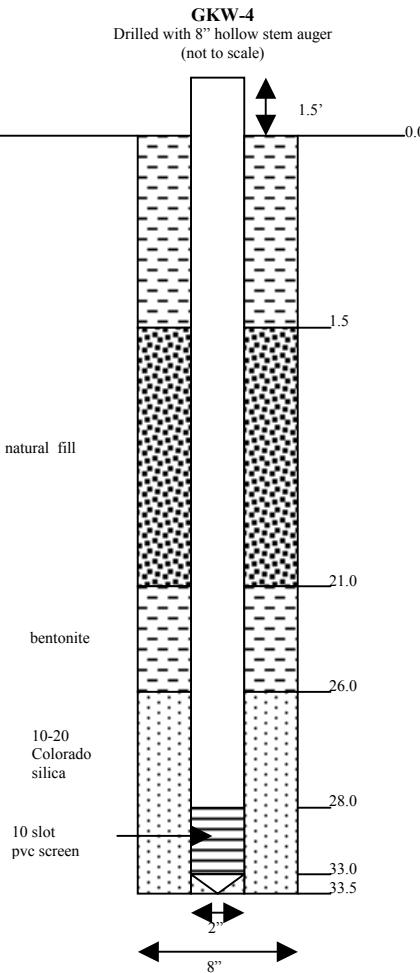
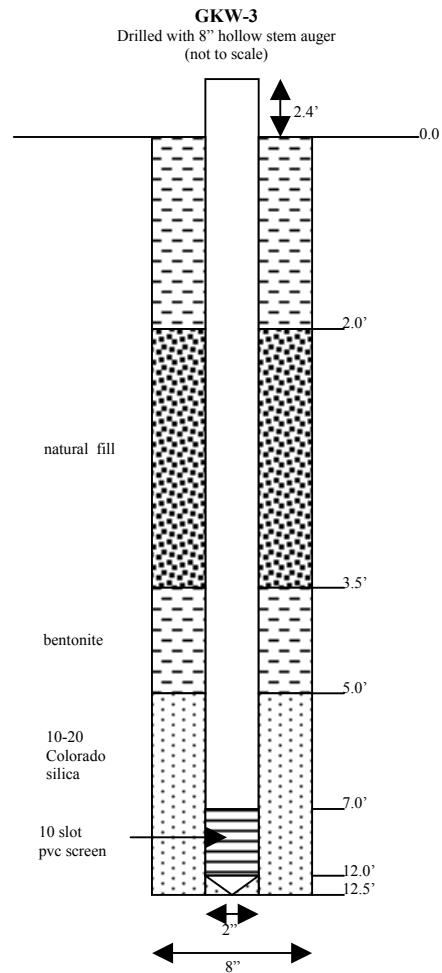
Monitoring Well Installation Information

Instrument ID	Instrument	Installation Date	Well depth/port depth (ft)	Top of casing above surface (ft)	Purge Volume
MW-1	monitoring well	8/26/97	28.70	3.00	0.163gal/ft
MW-2	monitoring well	8/26/97	18.02	0.00	0.163gal/ft
MW-3	monitoring well	Aug-97	14.55	2.00	0.163gal/ft
MW-4	monitoring well	Aug-97	16.83	3.00	0.163gal/ft
MW-5	monitoring well	Aug-97	16.22	3.00	0.163gal/ft
Stock well	stock well	previous	UNK	UNK	-----
GKW-1	monitoring well	5/22/00	33.50	1.30	0.163gal/ft
GKW-2	monitoring well	5/22/00	43.00	2.40	0.163gal/ft
GKW-3	monitoring well	5/22/00	12.50	2.40	0.163gal/ft
GKW-4	monitoring well	5/23/00	33.50	1.50	0.163gal/ft
GKW-5	monitoring well	5/23/00	19.00	2.00	0.163gal/ft
GKW-6	monitoring well	5/23/00	34.00	1.50	0.163gal/ft
GKW-7	monitoring well	5/24/00	14.00	1.00	0.163gal/ft
GKW-8	monitoring well	5/24/00	14.50	2.20	0.163gal/ft
GKW-9	monitoring well	5/24/00	10.00	1.70	0.163gal/ft
GKW-10	monitoring well	5/23/00	19.00	1.50	0.163gal/ft
GKW-11	monitoring well	5/24/00	24.00	0.92	0.163gal/ft

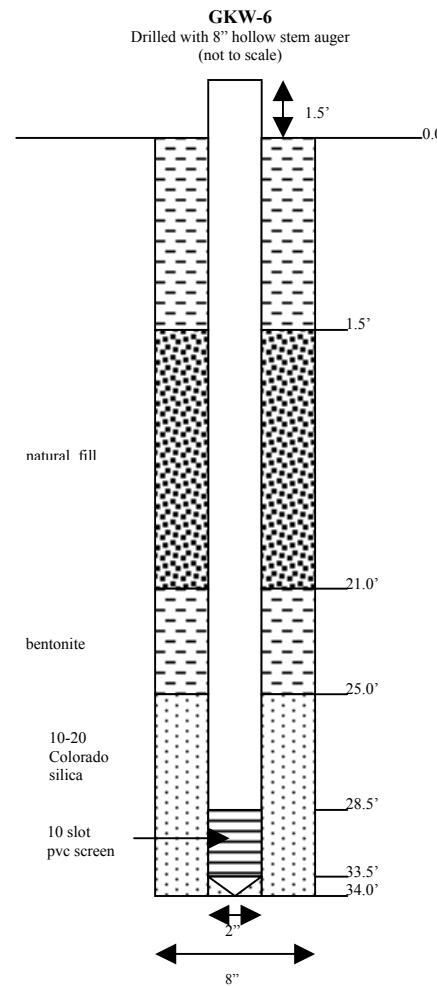
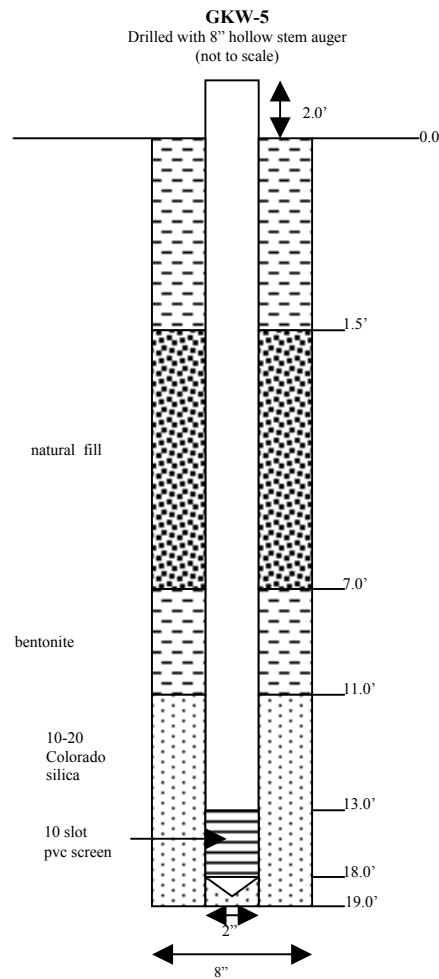
Monitoring Well Diagrams



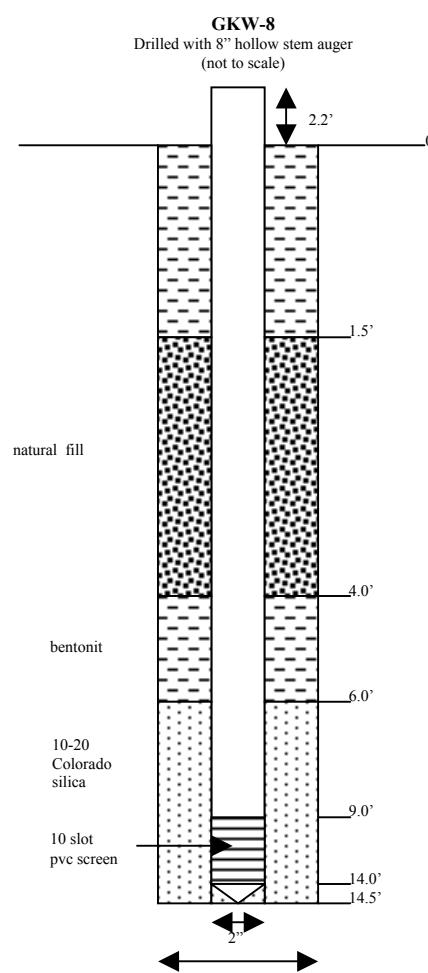
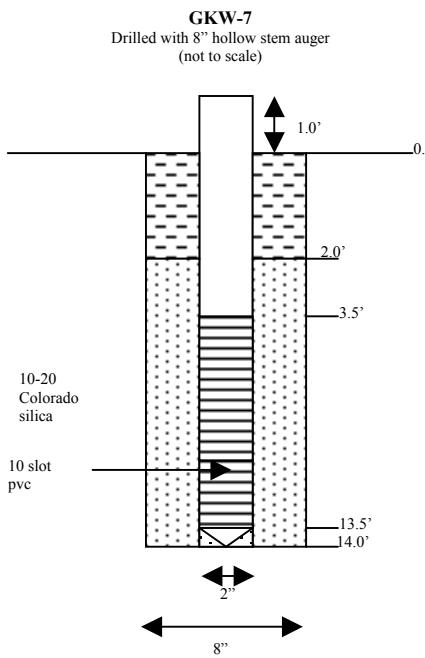
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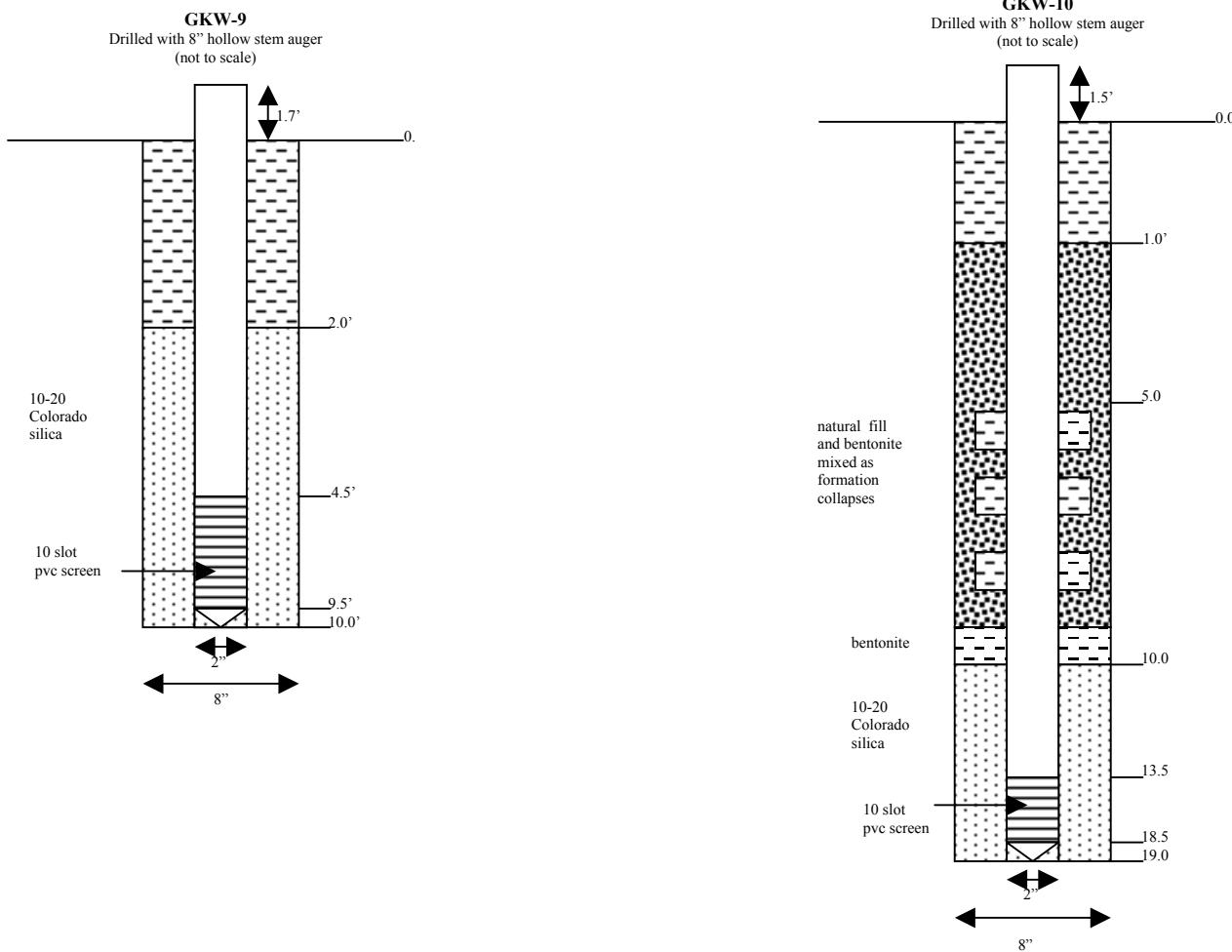
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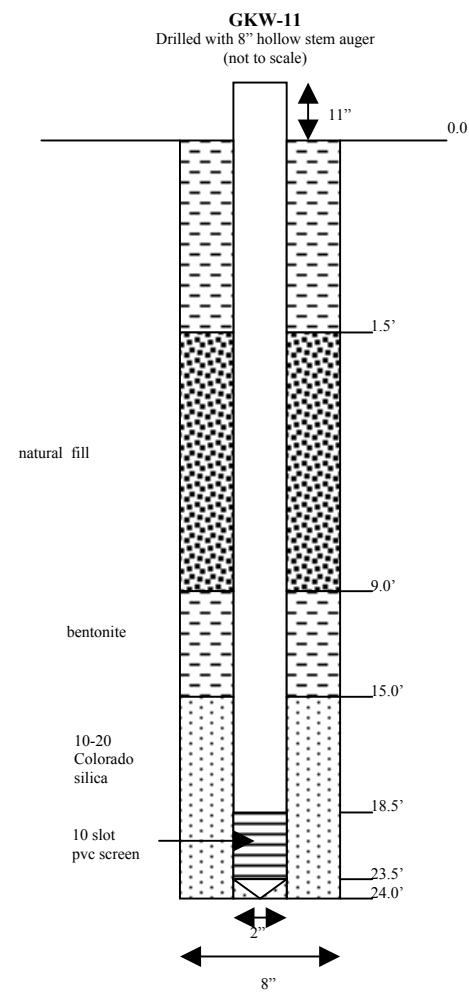
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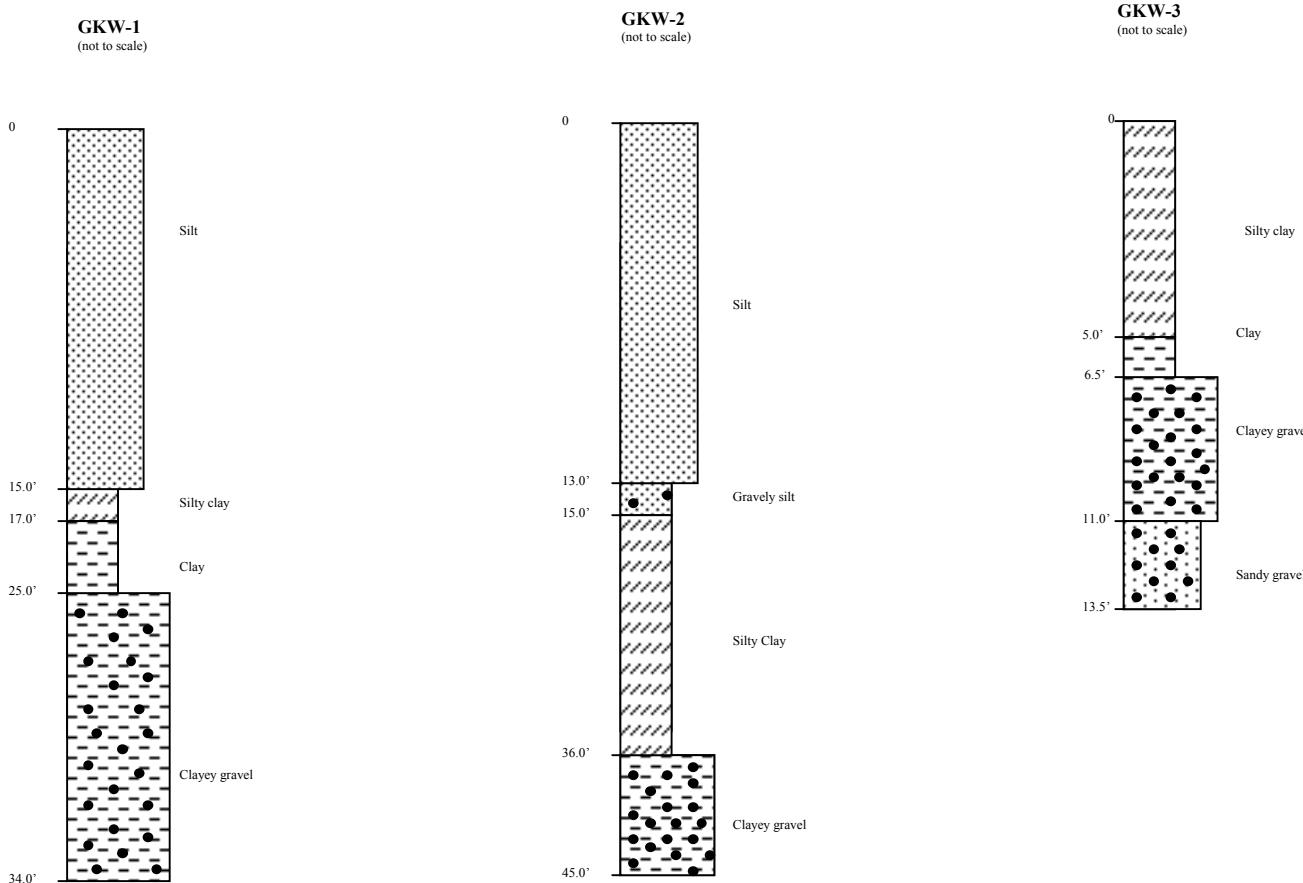
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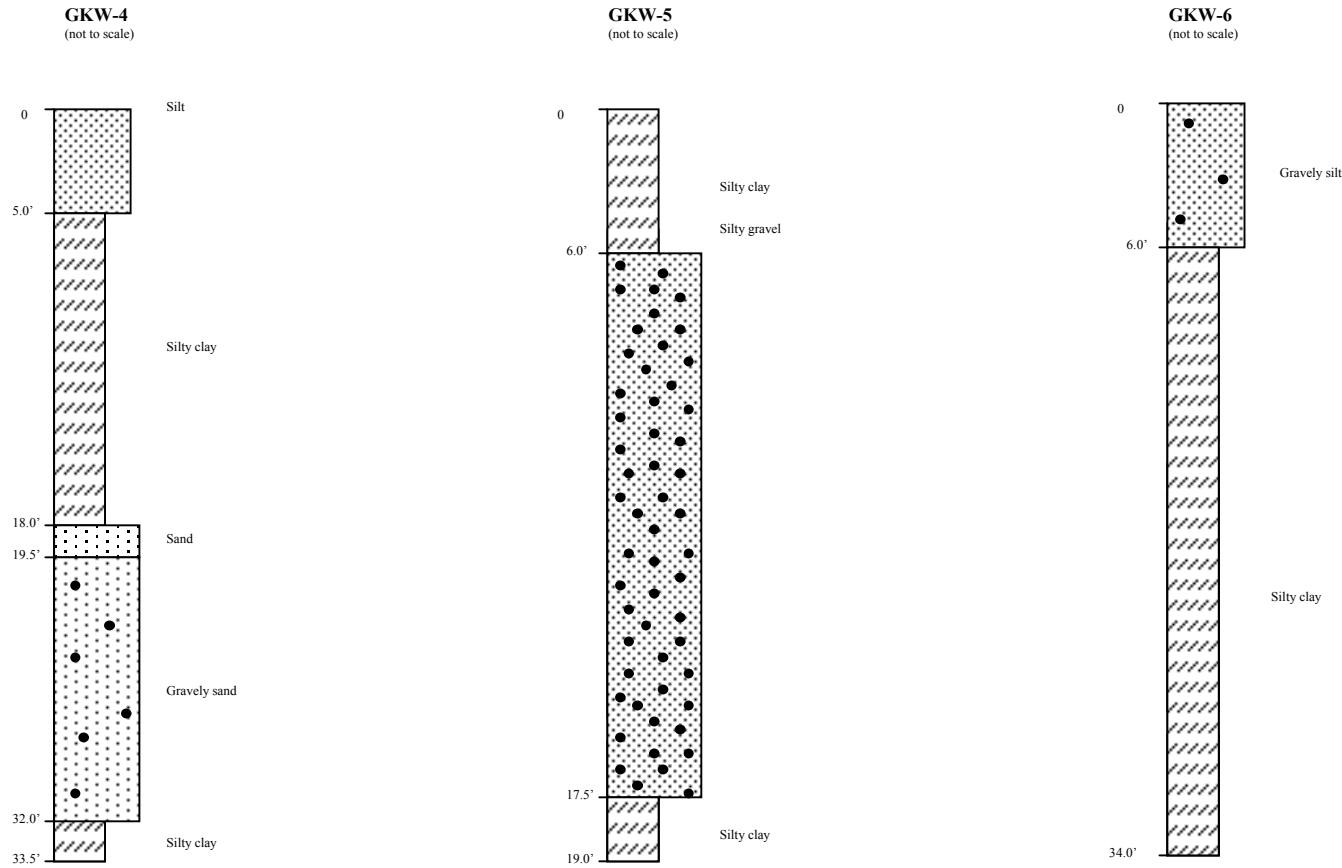
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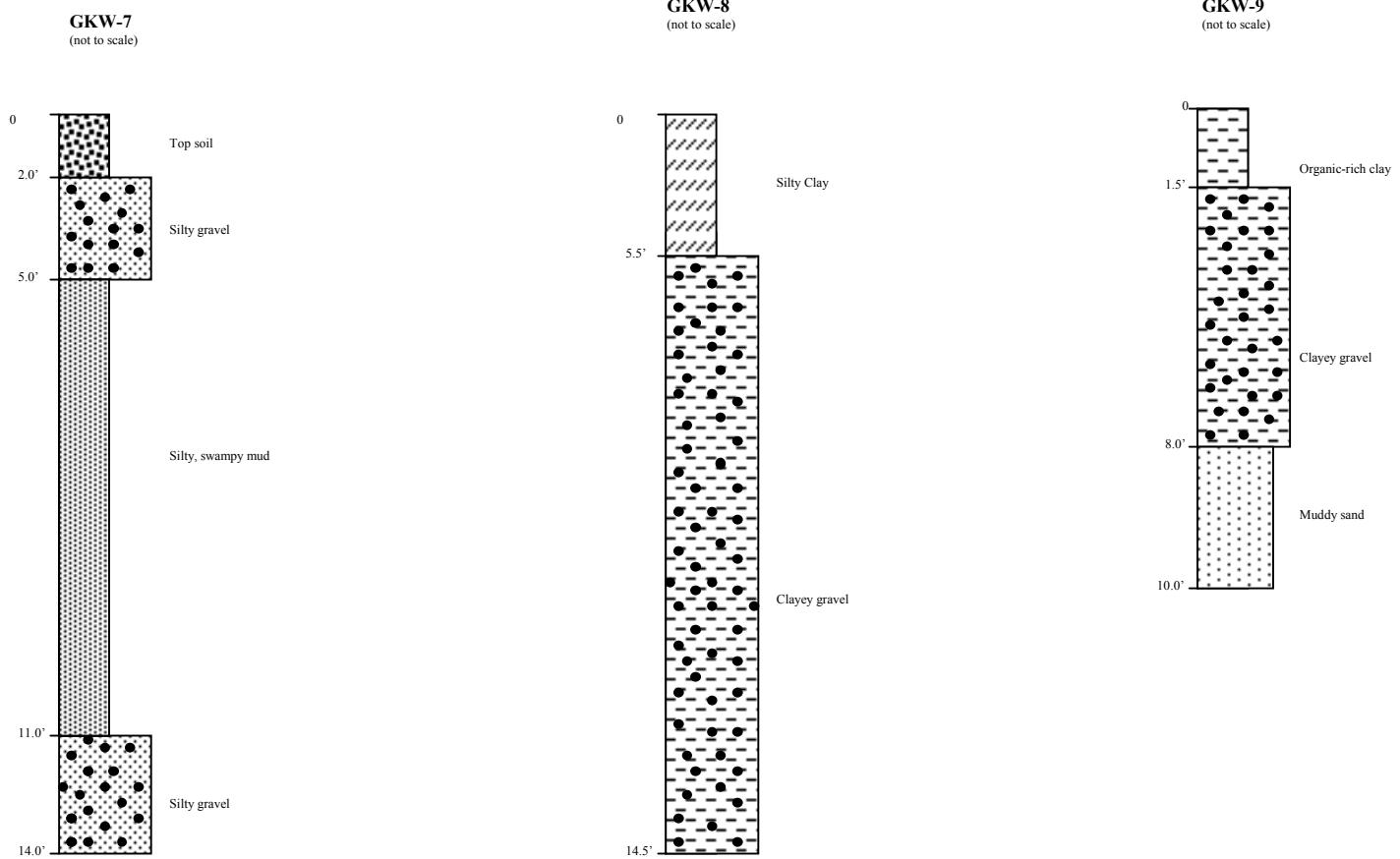
Well Log Diagrams



Well Log Diagrams

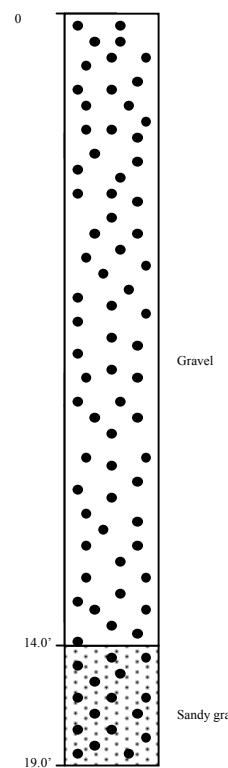


Well Log Diagrams

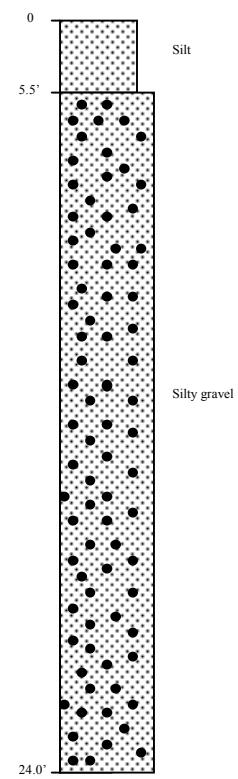


Well Log Diagrams

GKW-10
(not to scale)



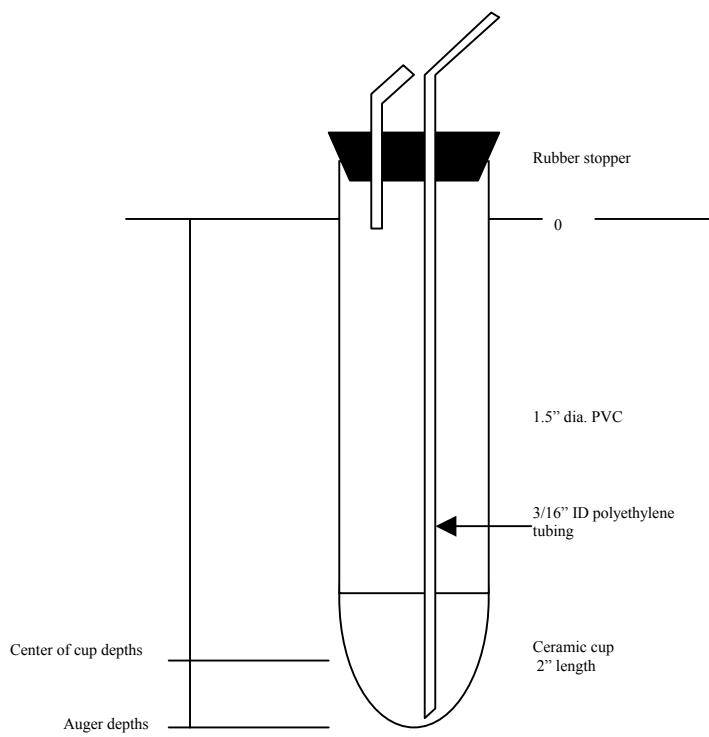
GKW-11
(not to scale)



Lysimeter Installation Information

Instrument ID	Instrument	Installation Date	Lysimeter Depth (inches)	Auger Depths (inches)	Top of casing above surface (inches)	Purge Volume
ALYSD-1	lysimeter	7/24/00	14	15	9.00	setting 4- 20 sec.
ALYSD2-2	lysimeter	7/10/00	15	16	4.00	setting 4- 20 sec.
ALYSD2-3	lysimeter	7/10/00	15	16	4.00	setting 4- 20 sec.
ALYSS-1	lysimeter	7/24/00	6	7	2.00	setting 4- 20 sec.
ALYSS2-2	lysimeter	7/24/00	6.5	7.5	5.50	setting 4- 20 sec.
ALYSS2-3	lysimeter	7/10/00	6	7	2.00	setting 4- 20 sec.
BLYSD2	lysimeter	7/10/00	15	16	4.00	setting 4- 20 sec.
BLYSS2	lysimeter	7/10/00	6	7	2.00	setting 4- 20 sec.
LYSD-2	lysimeter	7/11/00	20	21	2.00	setting 4- 20 sec.
LYSD2-1	lysimeter	7/11/00	20	21	2.00	setting 4- 20 sec.
LYSD2-5	lysimeter	7/11/00	20	21	2.00	setting 4- 20 sec.
LYSD2-9	lysimeter	7/10/00	20	21	2.00	setting 4- 20 sec.
LYSD-3	lysimeter	7/11/00	20	21	2.00	setting 4- 20 sec.
LYSD-4	lysimeter	7/11/00	20	21	2.00	setting 4- 20 sec.
LYSD-6	lysimeter	7/11/00	20	21	2.00	setting 4- 20 sec.
LYSD-7	lysimeter	7/10/00	20	21	2.00	setting 4- 20 sec.
LYSD-8	lysimeter	7/10/00	20	21	2.00	setting 4- 20 sec.
LYSD-10	lysimeter	5/18/01	20	21	2.00	setting 4- 20 sec.
LYSD-11	lysimeter	5/18/01	21	22	2.00	setting 4- 20 sec.
LYSD-12	lysimeter	5/18/01	20	21	2.00	setting 4- 20 sec.
LYSD-13	lysimeter	5/21/01	20	21	2.00	setting 4- 20 sec.
LYSD-14	lysimeter	5/21/01	20	21	2.00	setting 4- 20 sec.
LYSS-1	lysimeter	7/11/00	11	12	2.00	setting 4- 20 sec.
LYSS-2	lysimeter	7/11/00	10	11	2.00	setting 4- 20 sec.
LYSS2-4	lysimeter	7/11/00	10	11	2.00	setting 4- 20 sec.
LYSS2-6	lysimeter	7/11/00	10	11	2.00	setting 4- 20 sec.
LYSS-3	lysimeter	7/11/00	11	12	1.00	setting 4- 20 sec.
LYSS-5	lysimeter	7/11/00	11	12	1.00	setting 4- 20 sec.
LYSS-7	lysimeter	7/10/00	10	11	2.00	setting 4- 20 sec.
LYSS-8	lysimeter	7/10/00	10	11	2.00	setting 4- 20 sec.
LYSS-9	lysimeter	7/10/00	10	11	2.00	setting 4- 20 sec.
LYSS-10	lysimeter	5/18/01	10	11	2.00	setting 4- 20 sec.
LYSS-11	lysimeter	5/18/01	10	11	2.00	setting 4- 20 sec.
LYSS-12	lysimeter	5/18/01	10	11	2.00	setting 4- 20 sec.
LYSS-13	lysimeter	5/21/01	10	11	2.00	setting 4- 20 sec.
LYSS-14	lysimeter	5/21/01	11	12	2.00	setting 4- 20 sec.
LYSVD-1	lysimeter	7/11/00	30	31	2.00	setting 4- 30 sec.
LYSVD2-2	lysimeter	7/11/00	29	31	3.00	setting 4- 30 sec.
LYSVD2-3	lysimeter	7/11/00	31	32	1.00	setting 4- 30 sec.
LYSVD2-7	lysimeter	7/10/00	30	31	2.00	setting 4- 30 sec.
LYSVD2-8	lysimeter	7/10/00	31	32	1.00	setting 4- 30 sec.
LYSVD-4	lysimeter	7/11/00	31	32	1.00	setting 4- 30 sec.
LYSVD-5	lysimeter	7/11/00	29	30	3.00	setting 4- 30 sec.
LYSVD-6	lysimeter	7/11/00	30	31	2.00	setting 4- 30 sec.
LYSVD-9	lysimeter	7/10/00	30	31	2.00	setting 4- 30 sec.
LYSVD-10	lysimeter	5/18/01	30	31	2.00	setting 4- 20 sec.
LYSVD-11	lysimeter	5/18/01	30	31	2.00	setting 4- 20 sec.
LYSVD-13	lysimeter	5/21/01	30	31	2.00	setting 4- 20 sec.
LYSVD-14	lysimeter	5/21/01	30	31	2.00	setting 4- 20 sec.
NMLYSS2	lysimeter	7/10/00	5.5	6.5	2.50	setting 4- 20 sec.
NMLYSD2	lysimeter	7/10/00	11	12	8.00	setting 4- 20 sec.

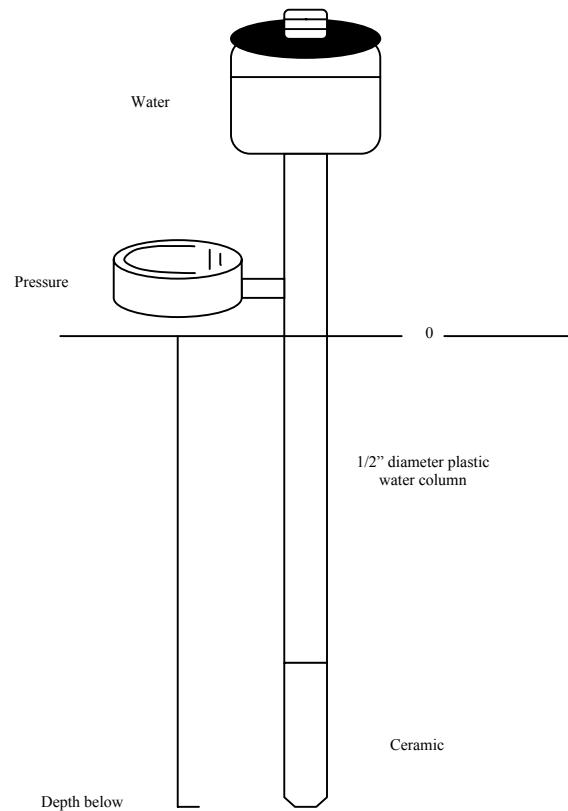
Diagram of a Lysimeter



Tensiometer Installation Information

Instrument ID	Instrument	Installation Date	Tensiometer depth (inches)
BTEN6"	tensiometer	5/18/00	6
BTEN12"	tensiometer	5/18/00	12
ATEN6"-2	tensiometer	5/19/00	6
ATEN12"-2	tensiometer	5/19/00	12
ATEN6"-3	tensiometer	6/1/00	6
ATEN12"-3	tensiometer	6/1/00	12
TEN6"-1	tensiometer	6/6/00	6
TEN12"-1	tensiometer	6/6/00	12
TEN24"-1	tensiometer	6/6/00	24
TEN6"-3	tensiometer	6/6/00	6
TEN12"-3	tensiometer	6/6/00	12
TEN24"-3	tensiometer	6/6/00	24
TEN6"-2	tensiometer	6/7/00	6
TEN12"-2	tensiometer	6/7/00	12
TEN24"-2	tensiometer	6/7/00	24
TEN6"-6	tensiometer	6/7/00	6
TEN12"-6	tensiometer	6/7/00	12
TEN24"-6	tensiometer	6/7/00	24
TEN6"-8	tensiometer	6/7/00	6
TEN24"-8	tensiometer	6/7/00	24
TEN12"-9	tensiometer	6/7/00	12
TEN24"-9	tensiometer	6/7/00	24
TEN6"-4	tensiometer	6/8/00	6
TEN12"-4	tensiometer	6/8/00	12
TEN24"-4	tensiometer	6/8/00	24
TEN12"-5	tensiometer	6/8/00	12
TEN24"-5	tensiometer	6/8/00	24
TEN6"-7	tensiometer	6/8/00	6
TEN12"-7	tensiometer	6/8/00	12
TEN24"-7	tensiometer	6/8/00	24
TEN6"-5	tensiometer	7/31/00	6
TEN12"-8	tensiometer	7/31/00	12
TEN6"-9	tensiometer	7/31/00	6
ATEN6"-1	tensiometer	7/31/00	6
ATEN12"-1	tensiometer	7/31/00	12
NMTEN6"	tensiometer	7/31/00	6
NMTEN12"	tensiometer	7/31/00	12
TEN6"-10	tensiometer	518/01	6
TEN12"-10	tensiometer	518/01	12
TEN24"-10	tensiometer	518/01	24
TEN6"-11	tensiometer	518/01	6
TEN12"-11	tensiometer	518/01	12
TEN24"-11	tensiometer	518/01	24
TEN6"-12	tensiometer	518/01	6
TEN12"-12	tensiometer	518/01	12
TEN24"-12	tensiometer	518/01	24
TEN6"-13	tensiometer	5/21/01	6
TEN12"-13	tensiometer	5/21/01	12
TEN24"-13	tensiometer	5/21/01	24
TEN6"-14	tensiometer	5/21/01	6
TEN12"-14	tensiometer	5/21/01	12
TEN24"-14	tensiometer	5/21/01	24

Diagram of a Tensiometer



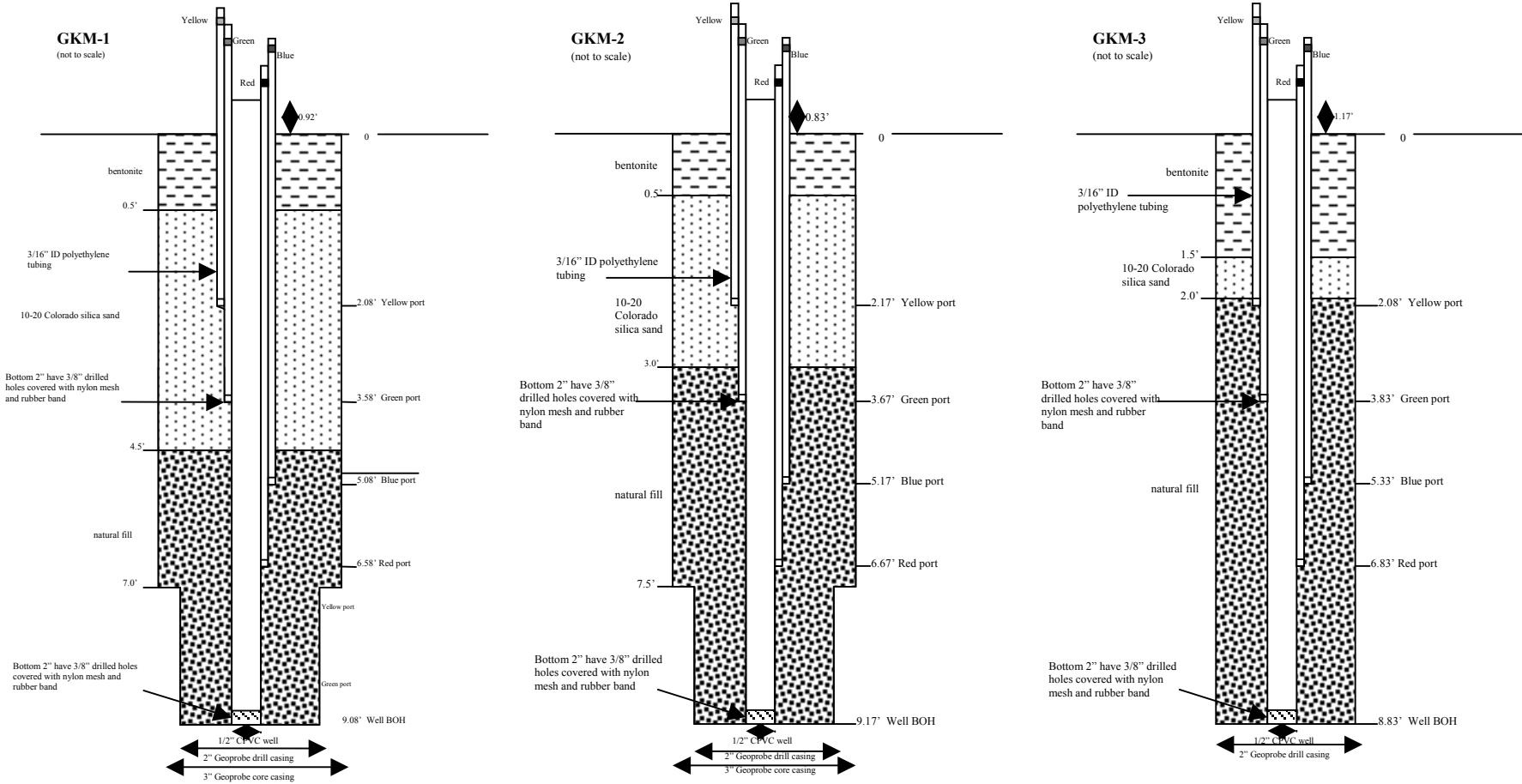
Multi-Level Sampler Installation Information

Instrument ID	Instrument	Installation Date	Well depth/port depth (ft)	Top of casing above surface (ft)	Purge Volume
MLS-3W	multi-level sampler	5/18/00	6.75	1.00	40mL/ft
MLS-3Red	multi-level sampler	5/18/00	5.25		6mL/ft
MLS-3Blue	multi-level sampler	5/18/00	3.75		6mL/ft
MLS-3Green	multi-level sampler	5/18/00	2.25		41ml + 6mL/ft
MLS-4W	multi-level sampler	5/18/00	13.00	1.00	40mL/ft
MLS-4Red	multi-level sampler	5/18/00	11.00		6mL/ft
MLS-4Blue	multi-level sampler	5/18/00	9.50		6mL/ft
MLS-4Green	multi-level sampler	5/18/00	8.00		41ml + 6mL/ft
MLS-5W	multi-level sampler	5/19/00	10.50	1.00	40mL/ft
MLS-5Red	multi-level sampler	5/19/00	8.50		6mL/ft
MLS-5Blue	multi-level sampler	5/19/00	7.00		6mL/ft
MLS-5Green	multi-level sampler	5/19/00	5.50		41ml + 6mL/ft
GKM-5W	multi-level sampler	5/19/00	9.00	1.00	40mL/ft
GKM-5Red	multi-level sampler	5/19/00	7.00		6mL/ft
GKM-5Blue	multi-level sampler	5/19/00	5.50		90mL + 6mL/ft
GKM-5Green	multi-level sampler	5/19/00	4.00		90mL + 6mL/ft
GKM-5Yellow	multi-level sampler	5/19/00	2.50		90mL + 6mL/ft
GKM-1W	multi-level sampler	6/6/00	9.08	0.92	40mL/ft
GKM-1Red	multi-level sampler	6/6/00	6.58		6mL/ft
GKM-1Blue	multi-level sampler	6/6/00	5.08		6mL/ft
GKM-1Green	multi-level sampler	6/6/00	3.58		90mL + 6mL/ft
GKM-1Yellow	multi-level sampler	6/6/00	2.08		90mL + 6mL/ft
GKM-3W	multi-level sampler	6/6/00	8.83	1.17	40mL/ft
GKM-3Red	multi-level sampler	6/6/00	6.83		6mL/ft
GKM-3Blue	multi-level sampler	6/6/00	5.33		6mL/ft
GKM-3Green	multi-level sampler	6/6/00	3.83		6mL/ft
GKM-3Yellow	multi-level sampler	6/6/00	2.08		6mL/ft
GKM-2W	multi-level sampler	6/7/00	9.17	0.83	40mL/ft
GKM-2Red	multi-level sampler	6/7/00	6.67		6mL/ft
GKM-2Blue	multi-level sampler	6/7/00	5.17		6mL/ft
GKM-2Green	multi-level sampler	6/7/00	3.67		6mL/ft
GKM-2Yellow	multi-level sampler	6/7/00	2.17		90mL + 6mL/ft
GKM-6W	multi-level sampler	6/7/00	9.17	0.83	40mL/ft
GKM-6Red	multi-level sampler	6/7/00	6.67		6mL/ft
GKM-6Blue	multi-level sampler	6/7/00	5.17		6mL/ft
GKM-6Green	multi-level sampler	6/7/00	3.67		90mL + 6mL/ft
GKM-6Yellow	multi-level sampler	6/7/00	2.17		90mL + 6mL/ft
GKM-8W	multi-level sampler	6/7/00	8.83	1.17	40mL/ft
GKM-8Red	multi-level sampler	6/7/00	6.33		6mL/ft
GKM-8Blue	multi-level sampler	6/7/00	4.83		6mL/ft
GKM-8Green	multi-level sampler	6/7/00	3.33		90mL + 6mL/ft
GKM-8Yellow	multi-level sampler	6/7/00	1.83		90mL + 6mL/ft
GKM-9W	multi-level sampler	6/7/00	9.00	1.00	40mL/ft

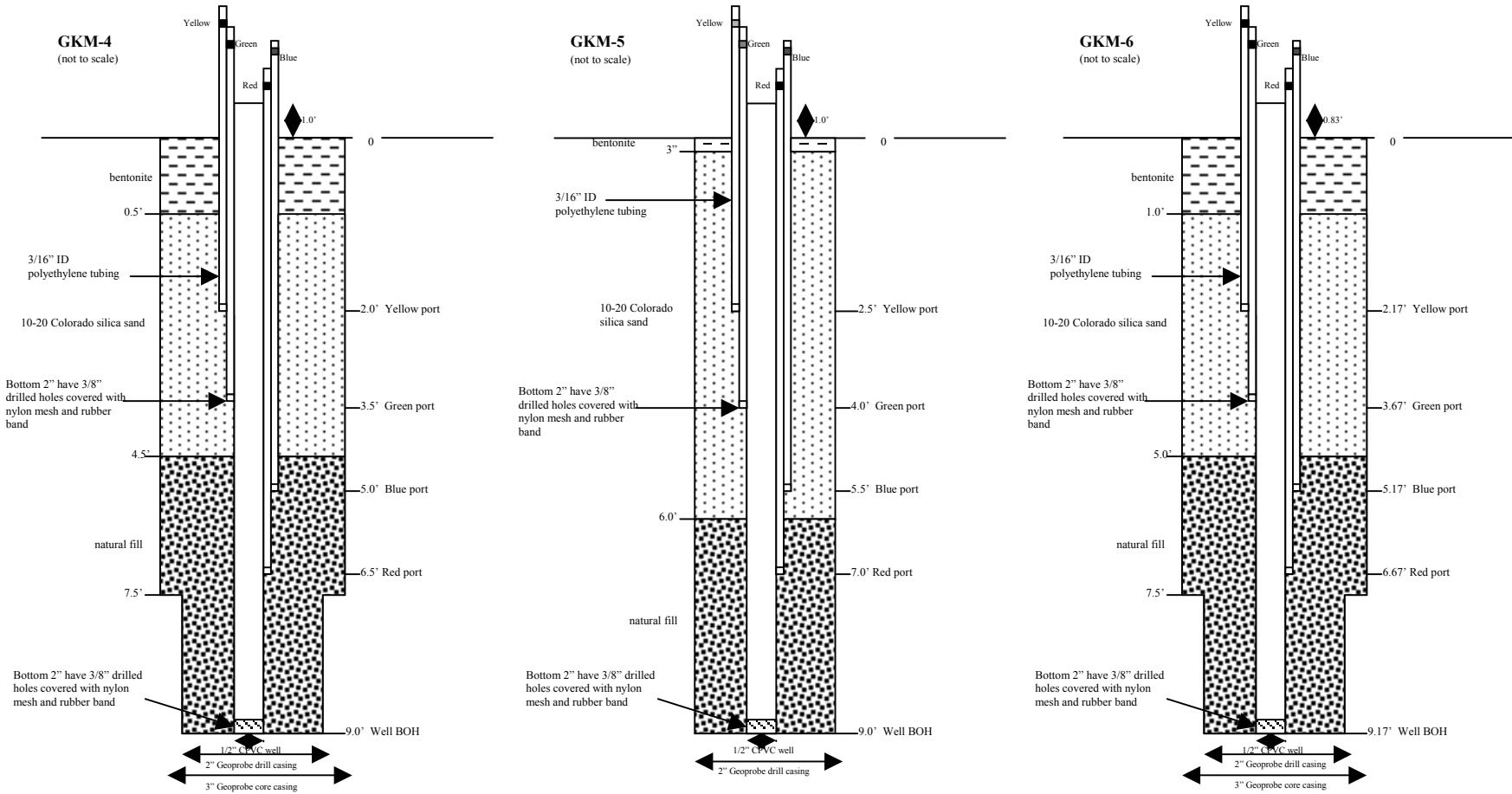
Multi-Level Sampler Installation Information

Instrument ID	Instrument	Installation Date	Well depth/port depth (ft)	Top of casing above surface (ft)	Purge Volume
GKM-9Red	multi-level sampler	6/7/00	6.50		6mL/ft
GKM-9Blue	multi-level sampler	6/7/00	5.00		6mL/ft
GKM-9Green	multi-level sampler	6/7/00	3.50		90mL + 6mL/ft
GKM-9Yellow	multi-level sampler	6/7/00	2.00		90mL + 6mL/ft
GKM-4W	multi-level sampler	6/8/00	9.00	1.00	40mL/ft
GKM-4Red	multi-level sampler	6/8/00	6.50		6mL/ft
GKM-4Blue	multi-level sampler	6/8/00	5.00		6mL/ft
GKM-4Green	multi-level sampler	6/8/00	3.50		90mL + 6mL/ft
GKM-4Yellow	multi-level sampler	6/8/00	2.00		90mL + 6mL/ft
GKM-7W	multi-level sampler	6/8/00	9.00	1.00	40mL/ft
GKM-7Red	multi-level sampler	6/8/00	6.50		6mL/ft
GKM-7Blue	multi-level sampler	6/8/00	5.00		90mL + 6mL/ft
GKM-7Green	multi-level sampler	6/8/00	3.50		90mL + 6mL/ft
GKM-7Yellow	multi-level sampler	6/8/00	2.00		90mL + 6mL/ft

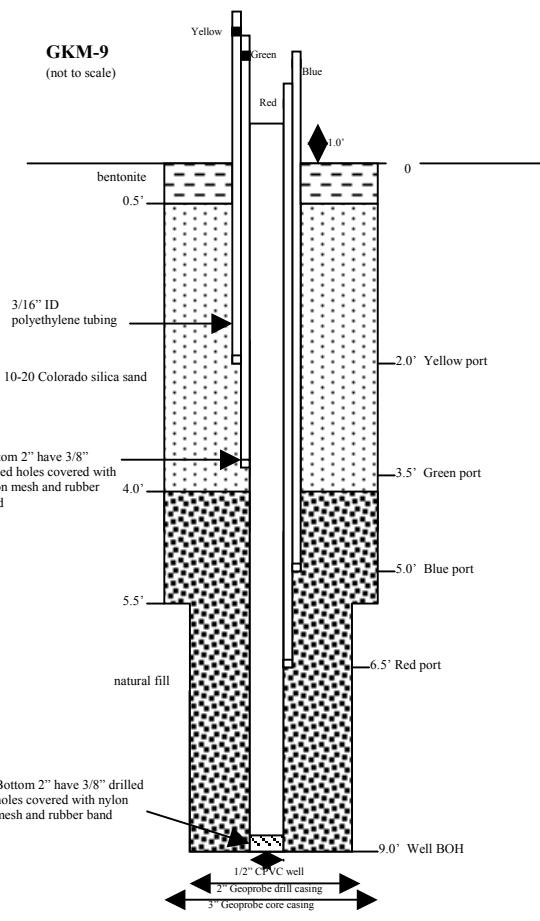
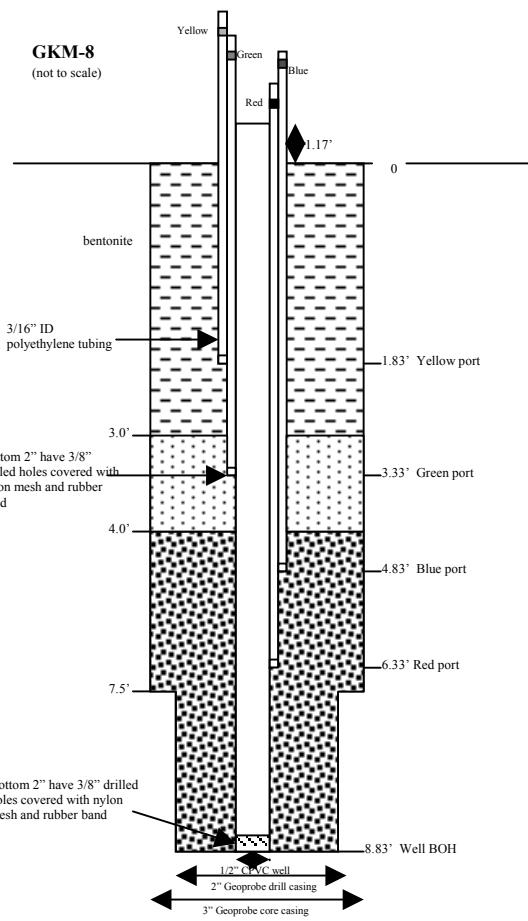
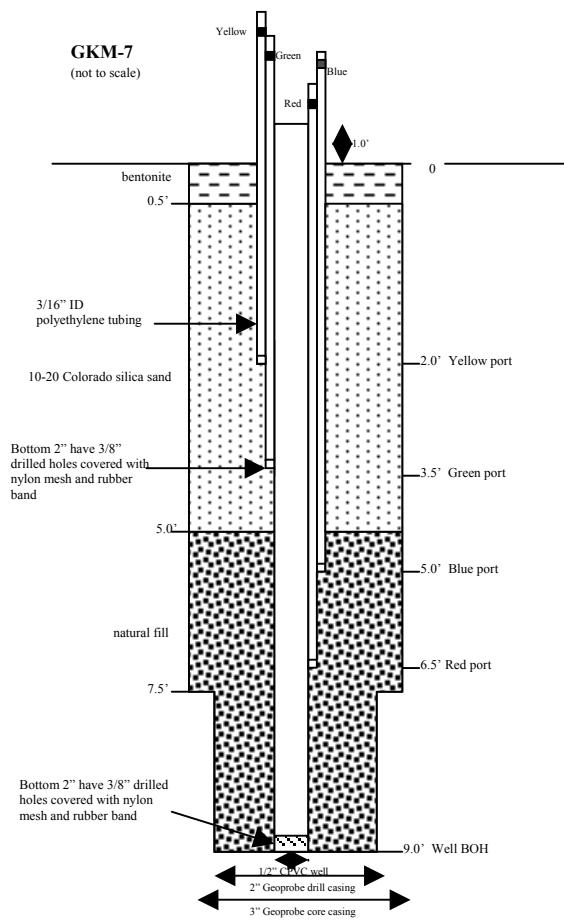
Multi-Level Well Diagrams



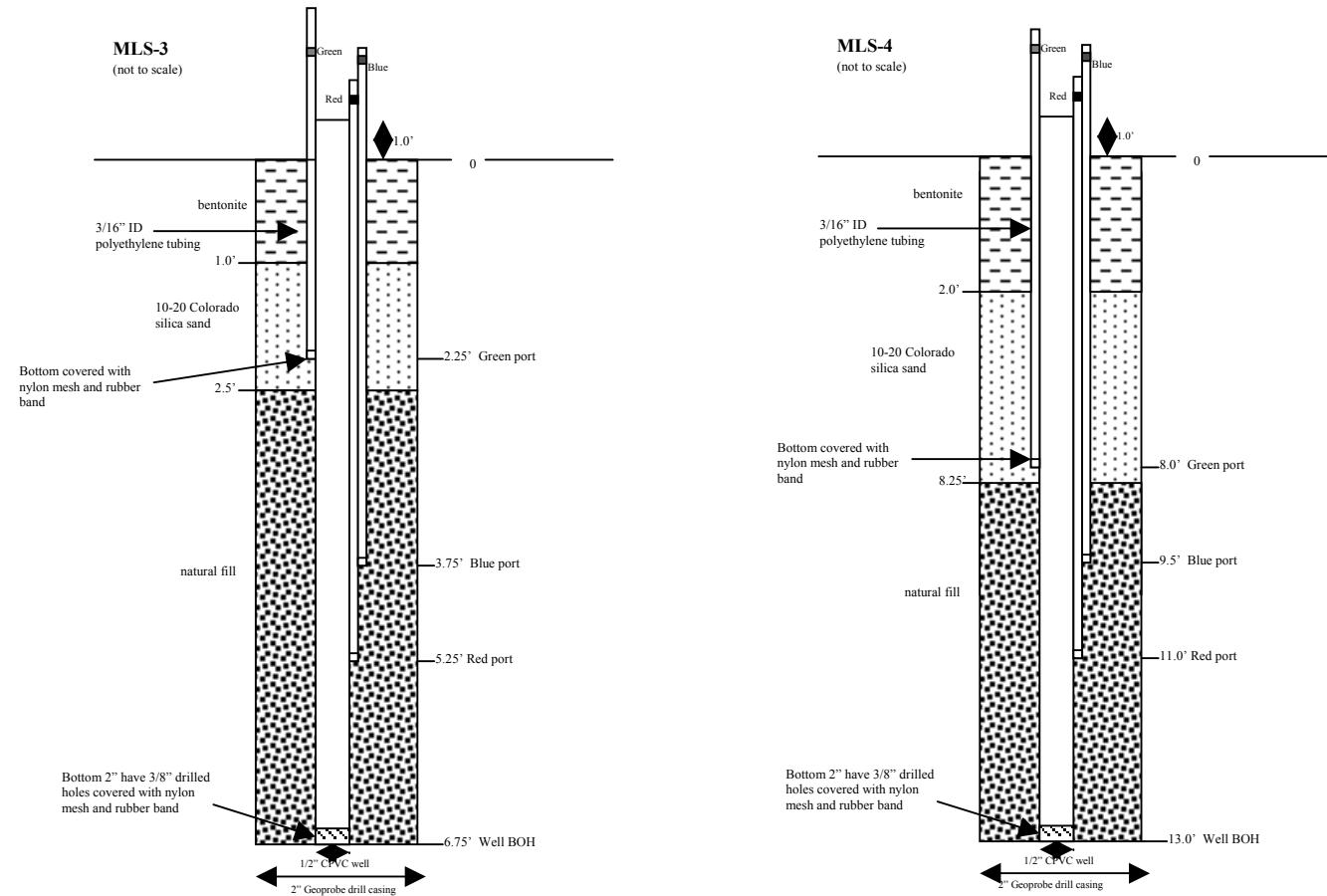
Multi-Level Well Diagrams



Multi-Level Well Diagrams



Multi-Level Well Diagrams



APPENDIX A – Water Resources

A.2 Field Measurements

Soil moisture, pH, temperature and conductivity and water levels were measured in the field during sampling events. Tensiometer graphs represent vertical characterization of soil moisture content at various dates. Hydrographs represent elevation-corrected water levels between the months of May 2000 thru December 2000.

Tensiometer Readings for 2000 (negative centibars)

	Date	5/30/00	6/14/00	6/16/00	6/19/00	6/20/00	6/26/00	7/10/00	7/11/00	7/13/00	7/17/00	7/18/00	7/20/00	7/24/00	8/4/00	8/28/00	8/29/00	8/30/00
Instrument ID																		
TEN6"-1	-	12	-	14	-	-	-	16	16	29	-	-	-	-	-	-	-	-
TEN12"-1	-	10	-	11	-	-	-	12	12	19	-	-	-	43	-	-	-	-
TEN24"-1	-	11	-	12	-	-	-	10	10	14	-	-	-	13	14	-	-	-
TEN6"-2	-	14	-	-	14	-	-	20	23	10	-	-	-	27	-	34	-	-
TEN12"-2	-	12	-	-	12	-	-	16	18	18	-	-	-	20	-	-	-	-
TEN24"-2	-	12	-	-	11	-	-	16	18	17	-	-	-	18	-	22	-	-
TEN6"-3	-	30	-	34	-	-	-	38	43	-	-	-	-	-	-	-	-	-
TEN12"-3	-	33	-	37	-	-	-	34	46	-	-	-	-	-	-	-	-	-
TEN24"-3	-	12	-	12	-	-	-	15	17	17	-	-	-	20	-	-	33	-
TEN6"-4	-	21	-	23	-	-	-	25	28	-	-	-	30	-	34	-	-	38
TEN12"-4	-	12	-	15	-	-	-	17	20	-	-	-	12	-	21	-	-	24
TEN24"-4	-	10	-	10	-	-	-	11	14	-	-	-	10	-	12	-	-	12
TEN6"-5	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TEN12"-5	-	18	-	1	-	-	-	19	22	23	-	-	-	-	28	-	-	35
TEN24"-5	-	0	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
TEN6"-6	-	-	-	-	66	-	-	70	34	-	-	-	-	-	-	-	-	-
TEN12"-6	-	-	-	-	-	33	-	44	30	-	-	-	-	13	-	-	-	-
TEN24"-6	-	-	-	-	20	23	-	24	42	-	-	-	-	38	-	-	-	-
TEN6"-7	-	-	22	-	-	-	25	-	27	-	-	-	-	23	36	-	32	-
TEN12"-7	-	-	22	-	-	23	25	-	24	-	-	-	-	26	21	-	10	-
TEN24"-7	-	-	0	-	-	-	22	-	22	-	-	-	-	22	22	-	26	-
TEN6"-8	-	-	43	-	-	-	-	-	48	-	-	-	-	-	44	-	-	-
TEN12"-8	-	-	25	-	-	11	11	-	10	-	-	-	-	-	30	-	18	-
TEN24"-8	-	-	9	-	-	-	-	-	-	-	-	-	-	-	10	-	9	-
TEN6"-9	-	-	14	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-
TEN12"-9	-	-	15	-	-	18	42	-	31	-	-	-	-	-	-	-	-	-
TEN24"-9	-	-	30	-	-	31	33	-	27	-	-	-	31	-	30	28	-	-
ATEN6"-1	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ATEN12"-1	-	1	-	-	-	-	15	-	18	-	-	-	-	-	28	-	-	-
ATEN6"-2	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ATEN12"-2	58	-	10	-	-	-	10	-	15	23	-	-	-	-	72	-	-	-
ATEN6"-3	-	10	-	-	-	-	9	-	6	-	8	-	-	12	8	-	-	-
ATEN12"-3	-	11	-	-	-	-	10	-	9	-	9	-	-	14	24	-	-	-
BTEN6"	64	12	-	-	-	-	17	-	32	-	-	9	-	-	-	-	-	-
BTEN12"	59	11	-	-	-	-	18	-	31	-	-	8	-	-	-	-	-	-
NMTEN6"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NMTEN12"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
**= water in reservoir frozen																		

Tensiometer Readings for 2001 (negative centibars)

	5/11/01	5/23/01	5/25/01	5/28/01	5/29/01	5/30/01	5/31/01	6/21/01	6/22/01	6/25/01	6/27/01	7/5/01	7/6/01	7/9/01	7/10/01	7/17/01	7/20/01	8/1/01	8/8/01	8/12/01
Instrument ID																				
TEN6"-1	-	-	-	-	-	-	17	-	-	28	-	-	-	-	28	-	-	-	-	-
TEN12"-1	-	-	-	-	-	-	43	-	-	53	-	-	-	-	48	-	-	-	-	-
TEN24"-1	-	-	-	-	-	-	-	-	24	-	-	-	-	18	-	-	-	-	-	-
TEN6"-2	-	-	-	-	-	-	14	-	-	18	-	-	-	-	19	-	-	-	-	-
TEN12"-2	-	-	-	-	-	-	1	-	-	10	-	-	-	-	12	-	-	-	-	-
TEN24"-2	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-
TEN6"-3	-	-	-	-	43	-	-	-	36	-	-	51	-	-	-	-	-	-	-	-
TEN12"-3	-	-	-	-	25	-	-	-	36	-	-	54	-	-	-	-	-	-	-	-
TEN24"-3	-	-	-	-	50	-	-	-	28	-	-	24	-	-	-	-	-	-	-	-
TEN6"-4	-	-	-	-	-	23	-	-	-	26	-	-	-	30	-	-	-	-	-	-
TEN12"-4	-	-	-	-	-	23	-	-	-	22	-	-	-	26	-	-	-	-	-	-
TEN24"-4	-	-	-	-	-	20	-	-	-	26	-	-	-	28	-	-	-	-	-	-
TEN6"-5	-	-	-	-	34	-	-	-	40	-	-	44	-	-	-	-	-	-	-	-
TEN12"-5	-	-	-	-	30	-	-	-	30	-	-	30	-	-	-	-	-	-	-	-
TEN24"-5	-	-	-	-	28	-	-	-	29	-	-	26	-	-	-	-	-	-	-	-
TEN6"-6	-	-	-	-	-	77	-	-	-	79	-	-	-	38	-	-	-	-	-	-
TEN12"-6	-	-	-	-	-	32	-	-	-	30	-	-	-	67	-	-	-	-	-	-
TEN24"-6	-	-	-	-	-	22	-	-	-	20	-	-	-	30	-	-	-	-	-	-
TEN6"-7	-	-	-	-	-	29	-	-	-	31	-	-	-	34	-	-	-	-	-	-
TEN12"-7	-	-	-	-	-	14	-	-	-	30	-	-	-	32	-	-	-	-	-	-
TEN24"-7	-	-	-	-	-	30	-	-	-	28	-	-	-	31	-	-	-	-	-	-
TEN6"-8	-	-	-	-	-	23	-	-	-	42	-	-	-	64	-	-	-	-	-	-
TEN12"-8	-	-	-	-	-	40	-	-	-	22	-	-	-	24	-	-	-	-	-	-
TEN24"-8	-	-	-	-	-	20	-	-	-	23	-	-	-	26	-	-	-	-	-	-
TEN6"-9	-	-	-	-	-	13	-	-	-	27	-	-	-	38	-	-	-	-	-	-
TEN12"-9	-	-	-	-	-	18	-	-	-	25	-	-	-	31	-	-	-	-	-	-
TEN24"-9	-	-	-	-	-	16	-	-	-	22	-	-	-	22	-	-	-	-	-	-
TEN6"-10	-	9	-	17	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-
TEN12"-10	-	87	-	15	-	-	-	38	-	-	-	30	-	-	-	-	-	80	-	-
TEN24"-10	-	61	-	74	-	-	-	44	-	-	-	28	-	-	-	-	-	-	76	-
TEN6"-11	-	26	-	14	-	-	-	12	-	-	-	16	-	-	-	-	-	-	18	-
TEN12"-11	-	36	-	41	-	-	-	12	-	-	-	13	-	-	-	-	-	-	16	-
TEN24"-11	-	14	-	30	-	-	-	12	-	-	-	13	-	-	-	-	-	-	19	-
TEN6"-12	-	20	-	-	10	-	-	21	-	-	-	-	16	-	-	-	-	-	30	-
TEN12"-12	-	16	-	-	10	-	-	21	-	-	-	-	16	-	-	-	-	-	29	-
TEN24"-12	-	21	-	-	10	-	-	14	-	-	-	-	4	-	-	-	-	-	10	-
TEN6"-13	-	29	-	-	8	-	-	12	-	-	-	-	2	-	-	-	-	-	12	-
TEN12"-13	-	24	-	-	3	-	-	12	-	-	-	-	6	-	-	-	-	-	15	-
TEN24"-13	-	22	-	-	10	-	-	20	-	-	-	-	12	-	-	-	-	-	22	-
TEN6"-14	-	90	-	18	-	-	-	88	-	-	-	62	-	-	-	-	-	-	-	-

Instrument ID	5/11/01	5/23/01	5/25/01	5/28/01	5/29/01	5/30/01	5/31/01	6/21/01	6/22/01	6/25/01	6/27/01	7/5/01	7/6/01	7/9/01	7/10/01	7/17/01	7/20/01	8/1/01	8/8/01	8/12/01
TEN12"-14	-	17	-	20	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-
TEN24"-14	-	78	-	90	-	-	-	85	-	-	-	50	-	-	-	-	40	14	-	-
ATEN6"-1	46	-	-	-	-	-	8	-	-	-	75	-	-	29	29	-	38	71	-	12
ATEN12"-1	22	-	-	-	-	-	10	-	-	-	-	-	48	48	-	-	72	-	-	11
ATEN6"-2	-	-	-	-	-	-	-	-	-	60	-	-	70	70	66	-	70	-	-	-
ATEN12"-2	38	-	51	-	-	-	68	-	-	14	-	-	42	42	70	-	-	70	-	72
ATEN6"-3	39	-	-	-	-	-	32	-	-	0	-	-	0	0	0	-	15	-	-	55
ATEN12"-3	28	-	-	-	-	-	24	-	-	9	-	-	6	6	3	-	16	-	-	37
BTEN6"	18	-	14	-	-	-	25	-	-	74	-	-	46	46	39	43	20	32	-	-
BTEN12"	46	-	0	-	-	-	10	-	-	67	-	-	28	28	27	60	6	14	-	-
NMTEN6"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NMTEN12"	46	-	-	-	-	-	-	-	-	76	-	-	55	55	-	-	-	-	-	-

Monitoring Well Field Measurements for 2000

Well ID	pH	Conductivity (mS)	Temperature (°C)
GKW-1 062800	7.44	0.388	11.7
GKW-1 071900	7.50	0.376	11.5
GKW-1 083000	7.68	0.457	12.2
GKW-10 063000	7.16	0.481	9.3
GKW-10 071800	7.26	0.452	9.1
GKW-10 082800	7.41	0.444	9.6
GKW-11 063000	7.36	0.425	9.5
GKW-11 071800	7.26	0.439	9.5
GKW-11 082800	7.49	0.469	13.4
GKW-2 062800	7.36	0.508	16.2
GKW-2 071900	7.40	0.413	12.5
GKW-2 083000	7.45	0.550	13.0
GKW-3 062900	6.98	0.53	12.4
GKW-3 071900	7.00	0.478	11.4
GKW-4 062800	7.24	0.434	11.8
GKW-4 071900	7.12	0.387	10.6
GKW-4 083000	7.21	0.584	10.9
GKW-5 062900	7.44	0.438	13.9
GKW-5 071900	7.32	0.488	17.3
GKW-5 082800	7.37	0.462	14.9
GKW-7 062900	6.45	0.293	11.6
GKW-7 072000	6.96	0.300	12.3
GKW-7 083000	7.05	0.334	11.4
GKW-8 062900	6.70	0.258	11.6
GKW-8 071900	6.92	0.258	11.7
GKW-8 082900	6.93	0.242	12.4
GKW-9 062900	7.05	0.528	14.3
GKW-9 072400	7.01	0.675	17.4
GKW-9 082900	7.10	0.799	16.9
MW-1 050100	6.91	0.463	7.8
MW-1 062900	7.02	0.509	10.6
MW-1 071800	7.36	0.495	8.2
MW-1 083000	7.47	0.528	9.6
MW-2 050100	6.86	0.440	8.5
MW-2 060200	7.44	0.454	11.1
MW-2 063000	7.09	0.503	9.6
MW-2 071800	7.31	0.481	10.3
MW-2 083000	7.32	0.570	10.3
MW-3 050100	7.18	0.348	14.2
MW-4 050100	7.09	0.436	7.6
MW-4 063000	7.40	0.524	10.2
MW-4 071800	7.34	0.509	10.4
MW-4 082800	7.50	0.513	10.7
MW-5 050100	6.99	0.400	8.5
MW-5 060200	7.41	0.374	12.4
MW-5 062700	7.36	0.446	14.8
MW-5 071800	7.32	0.460	13.1
MW-5 082800	7.47	0.477	14.2

Monitoring Well Field Measurements for 2001

Well ID	Date	pH	Conductivity (mS)	Temperatur e (°C)
GKW-1	052801	7.24	0.463	13.7
GKW-1	062101	7.81	0.473	13.4
GKW-1	070501	7.64	0.487	12.3
GKW-10	042501	7.50	0.658	8.4
GKW-10	062601	7.42	0.587	12.9
GKW-10	071001	7.37	0.553	10.5
GKW-11	042501	7.33	0.504	13.5
GKW-11	053101	7.49	0.476	16.7
GKW-11	062601	7.47	0.519	10.6
GKW-2	052801	7.22	0.592	14.6
GKW-2	062101	7.47	0.512	12.8
GKW-2	070501	7.42	0.522	12.9
GKW-3	053001	7.09	0.625	12.4
GKW-3	062101	6.98	0.687	11.2
GKW-3	070501	7.04	0.692	13.3
GKW-4	052801	6.96	0.680	13.5
GKW-4	062101	7.21	0.475	12.0
GKW-4	070501	7.23	0.482	12.4
GKW-5	053001	7.23	0.539	12.8
GKW-5	062201	7.20	0.533	13.6
GKW-5	070901	7.25	0.572	10.7
GKW-7	052801	7.00	0.344	15.2
GKW-7	062101	6.86	0.398	11.2
GKW-7	070501	6.97	0.394	11.6
GKW-8	053001	6.86	0.321	12.8
GKW-8	062101	6.9	0.269	10.9
GKW-8	070601	7.00	0.330	10.8
GKW-9	052901	7.06	0.496	13.2
GKW-9	062101	7.12	0.415	14.9
GKW-9	070901	7.20	0.516	16.1
MW-1	042501	7.33	0.962	18.3
MW-1	053001	7.43	0.609	13.7
MW-1	062601	7.48	0.710	8.8
MW-1	071001	7.48	0.782	7.9
MW-2	042501	7.50	0.574	13.4
MW-2	053001	7.32	0.612	11.9
MW-2	062601	7.53	0.651	9.0
MW-2	071001	7.55	0.625	10.3
MW-4	042501	7.62	0.559	13.4
MW-4	062601	7.52	0.633	10.7
MW-4	071001	7.47	0.638	12.2
MW-5	042501	7.49	0.426	16.5
MW-5	062601	7.51	0.563	10.8
MW-5	071001	7.60	0.570	13.2

Multi-Level Well Field Measurements for 2000

Well ID	pH	Conductivity (mS)	Temperature (°C)
GKM-1Green 082800	7.13	0.506	13.9
GKM-1Green 061900	7.15	0.513	10.4
GKM-1Green 071700	7.04	0.501	13.9
GKM-1Red 082800	7.39	0.497	13.3
GKM-1Red 061900	7.52	0.48	11.3
GKM-1Red 071700	7.20	0.464	<u>13.6</u>
GKM-1W 062900	7.28	0.465	10.9
GKM-1W 071700	7.10	0.484	14.5
GKM-1W 082800	7.48	0.517	14.4
GKM-2Blue 082900	7.15	0.245	13.5
GKM-2Blue 062000	6.69	-	10.9
GKM-2Blue 071700	6.90	0.278	13.7
GKM-2W 062800	6.96	0.309	16.6
GKM-2W 071700	6.68	0.318	13.8
GKM-2W 082900	7.11	0.248	14.8
GKM-3Blue 083000	7.16	0.567	13.6
GKM-3Blue 061900	7.22	0.423	10.5
GKM-3Blue 071700	6.83	0.568	17.2
GKM-3Green 083000	7.10	0.567	13.9
GKM-3Green 071700	6.89	0.582	18.0
GKM-3Red 083000	7.21	0.550	13.2
GKM-3Red 061900	7.26	0.466	13.2
GKM-3Red 071700	6.95	0.590	17.9
GKM-3W 062900	7.00	0.566	17.6
GKM-3W 083000	7.18	0.539	13.2
GKM-4Blue 083000	7.10	0.679	15.0
GKM-4Blue 061900	7.36	0.462	11.1
GKM-4Blue 072000	7.01	0.539	13.5
GKM-4Green 083000	7.38	0.728	16.5
GKM-4Red 083000	7.15	0.671	14.9
GKM-4Red 061900	7.08	0.464	10.9
GKM-4Red 072000	7.05	0.547	14.4
GKM-4W 062800	6.81	0.534	13.2
GKM-4W 072000	7.04	0.541	14.3
GKM-4W 083000	7.20	0.663	15.2
GKM-5Blue 083000	7.09	0.554	12.1
GKM-5Blue 061900	7.09	0.381	10.8
GKM-5Blue 071700	7.09	0.556	17.2
GKM-5Green 061900	7.29	0.391	12
GKM-5W 083000	7.17	0.535	11.4
GKM-6Blue 062000	6.88	-	12.9
GKM-6Blue 062600	6.23	0.409	11.5
GKM-6Green 062000	7.15	-	14.4
GKM-6W 062600	6.57	0.250	10.0
GKM-6W 072400	6.73	0.362	13.3
GKM-6W 082900	6.75	0.255	14.5
GKM-7Blue 082900	6.84	0.489	13.2

Multi-Level Well Field Measurements for 2000

Well ID	pH	Conductivity (mS)	Temperature (°C)
GKM-7Blue 062600	6.31	0.459	13.9
GKM-7Blue 072400	6.90	0.423	12.0
GKM-7R 082900	6.93	0.473	13.0
GKM-7W 062600	6.58	0.357	10.5
GKM-7W 072400	7.03	0.391	10.9
GKM-7W 082900	6.85	0.464	12.5
GKM-8B 082900	6.98	0.520	12.8
GKM-8Blue 062600	6.71	0.417	13.6
GKM-8Blue 072000	6.95	0.416	12.5
GKM-8Green 062600	7.13	0.427	14.0
GKM-8Red 082900	6.97	0.576	13.7
GKM-8Red 062600	6.46	0.407	11.5
GKM-8Red 072000	6.85	0.473	14.6
GKM-8W 072000	7.09	0.434	15.6
GKM-8W 082900	7.01	0.505	12.9
GKM-9Blue 082900	7.05	0.457	10.6
GKM-9Blue 062600	7.04	0.444	12.0
GKM-9Blue 072000	6.90	0.397	11.8
GKM-9Green 062600	7.06	0.436	11.8
GKM-9Red 082900	6.99	0.474	10.4
GKM-9Red 062600	6.5	0.411	10.4
GKM-9Red 072000	6.82	0.400	11.4
GKM-9W 062600	7.04	0.306	9.4
GKM-9W 072000	6.75	0.334	12.7
GKM-9W 082900	6.98	0.395	9.7
MLS-3Red 082800	7.60	0.729	16.3
MLS-3Red 062700	7.32	0.857	16.7
MLS-3Red 072000	7.41	0.501	15.4
MLS-3W 062700	7.88	0.618	17.9
MLS-3W 072000	7.51	0.449	14.4
MLS-3W 082800	7.49	0.708	17.3
MLS-4Red 082800	7.60	0.540	12.6
MLS-4Red 062000	6.89	-	22.7
MLS-4Red 063000	7.51	0.579	13.2
MLS-4Red 071800	7.56	0.565	13.9
MLS-4W 063000	7.48	0.563	11.6
MLS-4W 071800	7.60	0.544	12.3
MLS-4W 082800	7.70	0.538	12.1
MLS-5Blue 082800	7.51	0.490	14.4
MLS-5Blue 062000	7.55	-	15.0
MLS-5Blue 062700	7.46	0.558	16.2
MLS-5Blue 071800	7.49	0.531	15.8
MLS-5Green 062000	7.69	-	18.9
MLS-5Green 062700	7.60	0.551	16.8
MLS-5Green 071800	7.46	0.550	17.5
MLS-5Red 082800	7.47	0.483	14.4
MLS-5Red 062000	6.98	-	15.2
MLS-5Red 062700	7.51	0.487	16.5
MLS-5Red 071800	7.44	0.500	15.7
MLS-5W 062700	6.83	0.447	15.2
MLS-5W 071800	7.41	0.497	14.8
MLS-5W 082800	7.53	0.483	14.1

Multi-Level Well Field Measurements for 2001

Well ID	Date	pH	Conductivity (mS)	Temperature (°C)
GKM-1-B	070901	6.97	0.660	11.4
GKM-1-G	053001	6.88	0.778	10.2
GKM-1-G	062201	6.91	0.774	13.0
GKM-1-G	070901	6.81	0.681	11.7
GKM-1-R	053001	7.20	0.645	8.8
GKM-1-R	062201	7.26	0.648	11.8
GKM-1-R	070901	7.12	0.682	11.6
GKM-1-W	053001	7.12	0.657	8.2
GKM-1-W	062201	7.29	0.656	11.1
GKM-1-W	070901	7.02	0.684	11.7
GKM-2-B	052901	7.17	0.272	13.5
GKM-2-B	062201	7.00	0.294	11.7
GKM-2-B	070901	7.17	0.292	13.3
GKM-2-R	052901	7.17	0.274	12.8
GKM-2-R	062201	6.99	0.276	12.5
GKM-2-R	070901	7.18	2.88	13.2
GKM-2-W	052901	6.87	0.313	12.3
GKM-2-W	062201	6.96	0.294	13.9
GKM-2-W	070901	7.23	0.292	12.8
GKM-3-B	052801	6.94	0.549	12.4
GKM-3-B	062201	6.98	0.619	15.0
GKM-3-B	070501	6.99	0.615	12.8
GKM-3-G	052801	6.79	0.587	12.5
GKM-3-G	062201	6.87	0.650	15.8
GKM-3-G	070501	6.9	0.651	13.4
GKM-3-R	052801	6.93	0.533	10.7
GKM-3-R	062201	6.98	0.620	14.5
GKM-3-R	070501	7.04	0.618	12.8
GKM-3-W	052801	5.85	0.546	10.6
GKM-3-W	062201	6.81	1.048	14.4
GKM-3-W	070501	6.95	0.608	11.9
GKM-4-B	053101	-	0.682	14.0
GKM-4-B	062501	7.03	0.806	14.7
GKM-4-B	070601	7.07	0.765	13.0
GKM-4-G	053101	-	0.691	14.7
GKM-4-G	062501	6.97	0.811	12.3
GKM-4-G	070601	7.06	0.783	16.6
GKM-4-R	053101	-	0.652	14.9
GKM-4-R	062501	7.08	0.804	12.3
GKM-4-R	070601	7.06	0.745	15.5
GKM-4-W	053101	-	0.644	12.8
GKM-4-W	062501	7.06	0.757	11.5
GKM-4-W	070601	7.01	0.647	12.7
GKM-5-B	052801	6.91	0.519	14.1
GKM-5-B	062201	6.94	0.512	12.9
GKM-5-B	070501	7.08	0.551	12.9
GKM-5-G	062201	6.93	0.573	13.6
GKM-5-W	052901	7.74	0.539	7.7
GKM-5-W	062201	6.93	0.481	14.3
GKM-5-W	070501	7.1	0.539	12.5
GKM-6-B	052901	6.63	0.612	12.2
GKM-6-B	062501	6.75	-	10.8

Multi-Level Well Field Measurements for 2001

Well ID	Date	pH	Conductivity (mS)	Temperature (°C)
GKM-6-B	070901	6.72	0.576	13.7
GKM-6-G	052901	6.63	0.523	12.8
GKM-6-G	062501	6.70	-	11.3
GKM-6-W	052901	6.56	0.343	14.2
GKM-6-W	062501	6.93	-	9.9
GKM-6-W	070901	6.85	0.342	12.4
GKM-7-B	052901	6.71	0.419	13.7
GKM-7-B	062501	6.74	0.475	11.4
GKM-7-B	070601	6.76	0.455	11.8
GKM-7-R	052901	6.78	0.380	17.5
GKM-7-R	062501	6.83	0.465	10.2
GKM-7-R	070601	6.80	0.435	11.0
GKM-7-W	052901	6.72	0.409	16.9
GKM-7-W	062501	6.84	0.428	10.8
GKM-7-W	070601	7.03	0.400	10.6
GKM-8-B	052901	6.83	0.495	12.3
GKM-8-B	062501	6.86	0.522	11.1
GKM-8-B	070601	6.87	0.499	11.4
GKM-8-G	052901	6.78	0.632	11.6
GKM-8-G	062501	6.83	0.651	12.5
GKM-8-G	070601	6.88	0.617	14.01
GKM-8-R	052901	6.75	0.453	12.7
GKM-8-R	062501	6.85	0.520	11.2
GKM-8-R	070601	6.86	0.496	12.2
GKM-8-W	052901	6.67	0.431	12.0
GKM-8-W	062501	6.85	0.476	11.1
GKM-8-W	070601	6.80	0.438	11.7
GKM-9-B	053101	-	0.490	9.1
GKM-9-B	070601	6.89	0.471	12.9
GKM-9-G	053101	-	0.458	9.6
GKM-9-G	070601	6.84	0.518	13.9
GKM-9-R	053101	-	0.496	9.0
GKM-9-R	062501	6.9	0.454	11.3
GKM-9-R	070601	6.83	0.496	14.1
GKM-9-W	053101	-	0.378	9.0
GKM-9-W	062501	6.88	0.368	12.3
GKM-9-W	070601	6.87	0.398	12.6

Suction Lysimeter Field Measurements for 2000 and 2001

Lysimter ID	Date	pH	Conductivity (mS)	Temperature (°C)
ALYSD2-3 071800	071800	7.59	0.986	19.2
BLYSD2 072000	072000	7.45	0.823	18.6
LYSD-2 071700	071700	7.01	0.297	18.9
LYSD-1 071700	071700	7.58	1.764	16.1
LYSD-1 082800	082800	7.88	1.719	14.6
LYSD-4 072000	072000	6.85	1.844	18.5
LYSD-4 083000	083000	7.28	1.963	17.0
LYSD-7 072400	072400	5.78	1.232	20.4
LYSD-8 082900	082900	7.43	0.713	14.5
LYSVD-1 071700	071700	6.93	0.900	16.3
LYSVD-1 082800	082800	7.06	0.843	15.7
LYSVD2-2 071700	071700	6.96	0.300	18.2
LYSVD2-2 082900	082900	7.18	0.235	16.4
LYSVD2-3 071700	071700	7.53	0.539	18.2
LYSVD2-3 083000	083000	7.56	0.545	15.4
LYSVD2-7 072400	072400	6.18	0.995	16.1
LYSVD2-7 082900	082900	6.09	1.157	16.4
LYSVD2-8 072000	072000	6.67	0.533	17.9
LYSVD2-8 082900	082900	6.70	0.621	14.3
LYSVD-4 083000	083000	6.98	0.693	16.3
LYSVD-9 072000	072000	7.26	0.467	14.3
LYSVD-9 082900	082900	7.74	0.505	9.6
LYDVD-6	062501	7.76	-	12.3
LYSD-10	062101	7.12	0.725	15.6
LYSD-10	070501	7.00	0.936	21.0
LYSD-11	062101	6.69	0.940	15.4
LYSD-11	070501	6.74	0.99	17.2
LYSD-12	052901	7.30	1.460	13.9
LYSD-12	062101	7.54	0.895	16.2
LYSD-12	070601	7.41	0.973	17.1
LYSD-13	052901	7.29	0.782	13.4
LYSD-13	062101	7.41	0.853	15.4
LYSD-13	070601	7.40	0.914	17.3
LYSD-2	052901	6.75	1.032	21.3
LYSD-2	062201	6.28	1.127	20.2
LYSD-2	070901	6.65	0.933	17.6
LYSD2-1	062201	7.33	6.600	13.0
LYSD2-1	070901	7.35	6.050	13.8
LYSD2-9	053101	-	0.604	12.9
LYSD2-9	062501	7.3	0.609	15.3
LYSD2-9	070601	7.23	0.686	17.2
LYSD-3	052801	5.32	1.532	15.2
LYSD-3	062201	5.12	1.708	18.8
LYSD-4	053101	-	7.450	14.5
LYSD-4	062501	5.83	7.810	15.3
LYSD-6	062501	7.89	-	113.9
LYSD-7	052901	4.63	1.045	17.4
LYSD-7	062501	4.28	1.323	16.3
LYSD-8	052901	6.92	0.793	15.6
LYSD-8	062501	6.81	0.850	14.9
LYSD-8	070601	6.76	0.83	16.8
LYSS-1	062201	7.63	7.210	15.7
LYSS-1	070901	7.76	7.080	15.5
LYSS-10	070501	6.98	1.207	20.7

Suction Lysimeter Field Measurements for 2000 and 2001

Lysimeter ID	Date	pH	Conductivity (mS)	Temperature (°C)
LYSS-11	062101	6.66	1.405	16.3
LYSS-11	070501	6.95	1.345	18.6
LYSS-12	062101	7.42	0.888	17.0
LYSS-12	070601	7.29	0.893	17.2
LYSS-13	062101	7.48	1.154	15.9
LYSS-13	070601	7.70	1.248	17.6
LYSS2-4	053101	-	5.380	17.2
LYSS2-4	062501	4.13	6.680	18.5
LYSS2-4	070601	4.45	8.79	20.6
LYSS-3	052801	5.57	1.765	17.1
LYSS-3	062201	4.75	1.990	19.0
LYSS-3	070501	4.73	1.931	18.9
LYSS-5	052801	4.78	1.409	17.2
LYSS-5	062201	4.69	1.744	18.8
LYSS-5	070501	4.91	1.706	18.9
LYSS-7	062501	3.96	3.290	17.2
LYSS-7	070601	3.88	3.070	17.6
LYSS-8	062501	6.88	0.677	16.7
LYSS-9	062501	7.47	0.745	16.8
LYSS-9	070601	7.60	0.702	16.5
LYSVD-1	053001	7.12	2.090	12.7
LYSVD-1	062201	6.94	1.504	14.8
LYSVD-1	070901	6.81	1.357	12.5
LYSVD-10	062101	6.97	1.645	15.9
LYSVD-11	052801	6.59	0.766	13.9
LYSVD-11	062101	6.67	0.858	14.9
LYSVD-11	070501	6.74	0.864	15.6
LYSVD-13	052901	7.05	0.665	14.6
LYSVD-13	062101	7.17	0.822	17.0
LYSVD-13	070601	7.26	0.836	17.4
LYSVD2-2	052901	7.14	0.314	16.9
LYSVD2-2	062201	6.96	0.412	14.5
LYSVD2-2	070901	7.13	0.408	16.6
LYSVD2-3	062201	7.26	1.288	14.8
LYSVD2-7	062501	5.22	0.797	14.0
LYSVD2-7	070601	5.45	0.747	15.5
LYSVD2-8	052901	6.66	0.554	13.8
LYSVD2-8	062501	6.57	0.673	13.8
LYSVD2-8	070601	6.55	0.712	15.0
LYSVD-3	052801	7.06	1.522	13.9
LYSVD-3	070501	7.21	1.112	16.7
LYSVD-4	053101	-	1.738	12.1
LYSVD-4	062501	6.93	1.657	14.3
LYSVD-4	070601	6.76	1.65	16.9
LYSVD-6	052901	7.59	0.738	17.3
LYSVD-6	070901	7.54	0.829	14.8
LYSVD-9	053101	-	0.434	12.2
LYSVD-9	062501	6.86	0.478	15.9
LYSVD-9	070601	6.90	0.529	13.8
ALYSD-1	053101	7.67	1.020	23.0
ALYSD2-3	062701	7.63	1.008	17.6
ALYSD2-3	071001	7.72	0.993	19.5

Water Level Measurements – Monitoring Wells

Well ID:	MW1	Well ID:	MW2
Elevation of casing (ft):	4532.86	Elevation of casing (ft):	4494.52
Measurement Date		Water Level Depth, in feet (Elevation Corrected)	
5/1/00	4506.98	5/1/00	4481.62
5/18/00	-	5/18/00	-
5/19/00	-	5/19/00	-
5/22/00	-	5/22/00	-
5/23/00	-	5/23/00	-
5/24/00	-	5/24/00	-
5/25/00	-	5/25/00	-
5/30/00	-	5/30/00	-
6/1/00	-	6/1/00	-
6/2/00	4507.32	6/2/00	4482.01
6/6/00	-	6/6/00	-
6/7/00	-	6/7/00	4482.52
6/8/00	-	6/8/00	-
6/12/00	-	6/12/00	-
6/13/00	-	6/13/00	-
6/19/00	-	6/19/00	-
6/20/00	4507.62	6/20/00	4482.8
6/26/00	-	6/26/00	-
6/27/00	-	6/27/00	-
6/28/00	-	6/28/00	-
6/29/00	4507.69	6/29/00	-
6/30/00	-	6/30/00	4482.83
7/17/00	-	7/17/00	-
7/18/00	4507.87	7/18/00	4483.01
7/19/00	-	7/19/00	-
7/20/00	-	7/20/00	-
7/24/00	-	7/24/00	-
8/28/00	-	8/28/00	-
8/29/00	-	8/29/00	-
8/30/00	4507.47	8/30/00	4481.69
9/28/00	-	9/28/00	-
9/29/00	-	9/29/00	-
9/30/00	-	9/30/00	-
10/1/00	4507.11	10/1/00	4481.35
10/28/00	-	10/28/00	4481.54
12/4/00	4506.88	12/4/00	4480.92
2/21/01	4506.71	2/21/01	-
2/28/01	-	2/28/01	-
4/23/01	4510.54	4/23/01	4483.82
4/24/01	-	4/24/01	-
4/25/01	4510.53	4/25/01	4483.8
5/28/01	-	5/28/01	-
5/29/01	-	5/29/01	-
5/30/01	4508.76	5/30/01	4484.31
5/31/01	-	5/31/01	-
6/1/01	-	6/1/01	-
6/21/01	-	6/21/01	-
6/22/01	-	6/22/01	-
6/25/01	-	6/25/01	-
6/26/01	4517.1	6/26/01	4487.22
7/5/01	-	7/5/01	-
7/6/01	-	7/6/01	-
7/10/01	4517.2	7/10/01	4487.93
8/8/01	-	8/8/01	-
8/12/01	4512.87	8/12/01	4486.99

Water Level Measurements – Monitoring Wells

Measurement Date	Well ID: MW3	Water Level Depth, in feet (Elevation Corrected)	Well ID: MW4	
Elevation of casing (ft):	4498.22		Elevation of casing (ft):	4497.65
		Water Level Depth, in feet (Elevation Corrected)	Water Level Depth, in feet (Elevation Corrected)	
5/1/00	4488.44		5/1/00	4484
5/18/00	4488.78		5/18/00	4484.03
5/19/00	-		5/19/00	-
5/22/00	-		5/22/00	-
5/23/00	-		5/23/00	-
5/24/00	-		5/24/00	-
5/25/00	-		5/25/00	-
5/30/00	-		5/30/00	-
6/1/00	-		6/1/00	-
6/2/00	4489.53		6/2/00	4484.13
6/6/00	-		6/6/00	-
6/7/00	-		6/7/00	-
6/8/00	-		6/8/00	-
6/12/00	-		6/12/00	-
6/13/00	-		6/13/00	-
6/19/00	-		6/19/00	-
6/20/00	4489.71		6/20/00	4484.37
6/26/00	-		6/26/00	-
6/27/00	-		6/27/00	4484.29
6/28/00	-		6/28/00	-
6/29/00	-		6/29/00	-
6/30/00	-		6/30/00	4484.26
7/17/00	-		7/17/00	-
7/18/00	-		7/18/00	4484.3
7/19/00	-		7/19/00	-
7/20/00	-		7/20/00	-
7/24/00	-		7/24/00	-
8/28/00	-		8/28/00	4483.89
8/29/00	-		8/29/00	-
8/30/00	-		8/30/00	-
9/28/00	-		9/28/00	-
9/29/00	-		9/29/00	-
9/30/00	-		9/30/00	-
10/1/00	-		10/1/00	4483.92
10/28/00	-		10/28/00	4483.89
12/4/00	-		12/4/00	4483.63
2/21/01	-		2/21/01	-
2/28/01	-		2/28/01	4483.68
4/23/01	-		4/23/01	4484.44
4/24/01	-		4/24/01	-
4/25/01	-		4/25/01	4484.45
5/28/01	-		5/28/01	-
5/29/01	-		5/29/01	-
5/30/01	-		5/30/01	4484.44
5/31/01	-		5/31/01	-
6/1/01	-		6/1/01	-
6/21/01	-		6/21/01	-
6/25/01	-		6/25/01	-
6/26/01	-		6/26/01	4484.98
7/5/01	-		7/5/01	-
7/6/01	-		7/6/01	-
7/9/01	-		7/9/01	-
7/10/01	-		7/10/01	4485.13
8/12/01	-		8/12/01	4484.89

Water Level Measurements – Monitoring Wells

Measurement Date		Wells:		Stockwell
Well ID:		Water Level Depth, in feet (Elevation Corrected)		
Measurement Date	Elevation of casing (ft):	Elevation of casing (ft):	Water Level Depth, in feet (Elevation Corrected)	
5/1/00		5/1/00	4477.51	4482.33
5/18/00	-	5/18/00	-	-
5/19/00	4478.36	5/19/00	-	-
5/22/00	-	5/22/00	-	-
5/25/00	-	5/25/00	-	-
5/30/00	-	5/30/00	-	-
6/1/00	-	6/1/00	-	-
6/2/00	4479.38	6/2/00	4483.05	
6/6/00	-	6/6/00	-	
6/7/00	-	6/7/00	-	
6/12/00	-	6/12/00	-	
6/13/00	-	6/13/00	-	
6/19/00	-	6/19/00	-	
6/20/00	4479.17	6/20/00	4477.05	
6/26/00	-	6/26/00	-	
6/27/00	4479.15	6/27/00	-	
6/28/00	-	6/28/00	-	
6/29/00	-	6/29/00	-	
6/30/00	-	6/30/00	-	
7/17/00	-	7/17/00	-	
7/18/00	4478.71	7/18/00	-	
7/19/00	-	7/19/00	-	
7/20/00	-	7/20/00	-	
7/24/00	-	7/24/00	-	
8/28/00	4477.32	8/28/00	4481.28	
8/29/00	-	8/29/00	-	
8/30/00	-	8/30/00	-	
9/28/00	-	9/28/00	-	
9/29/00	-	9/29/00	-	
9/30/00	-	9/30/00	-	
10/1/00	4478.11	10/1/00	-	
10/28/00	4477.17	10/28/00	4482.9	
12/4/00	4476.09	12/4/00	4482.2	
2/21/01	-	2/21/01	-	
2/28/01	-	2/28/01	-	
4/23/01	4478.64	4/23/01	4483.95	
4/24/01	-	4/24/01	-	
4/25/01	4478.65	4/25/01	-	
5/28/01	-	5/28/01	-	
5/29/01	-	5/29/01	-	
5/30/01	4480.39	5/30/01	-	
5/31/01	-	5/31/01	-	
6/1/01	-	6/1/01	-	
6/21/01	-	6/21/01	-	
6/22/01	-	6/22/01	-	
6/25/01	-	6/25/01	-	
6/26/01	4480.92	6/26/01	4483.69	
7/5/01	-	7/5/01	-	
7/6/01	-	7/6/01	-	
7/9/01	-	7/9/01	-	
7/10/01	4481.25	7/10/01	4483.94	
8/8/01	-	8/8/01	-	
8/11/01	-	8/11/01	-	
8/12/01	4480.8	8/12/01	-	

Water Level Measurements – Monitoring Wells

Measurement Date	Well ID:	Water Level Depth, in feet (Elevation Corrected)	Well ID:	Water Level Depth, in feet (Elevation Corrected)
5/1/00	GKW1	-	5/1/00	-
5/18/00		-	5/18/00	-
5/19/00		-	5/19/00	-
5/22/00		4476.72	5/22/00	4487.19
5/23/00		-	5/23/00	-
5/24/00		-	5/24/00	-
5/25/00		4476.67	5/25/00	4487.79
5/30/00		-	5/30/00	-
6/1/00		-	6/1/00	-
6/2/00		4476.84	6/2/00	4496.92
6/6/00		-	6/6/00	-
6/12/00		-	6/12/00	-
6/13/00		-	6/13/00	-
6/19/00		-	6/19/00	-
6/20/00		4478.03	6/20/00	4503.4
6/26/00		-	6/26/00	-
6/27/00		-	6/27/00	-
6/28/00		4478.54	6/28/00	4507.9
6/29/00		-	6/29/00	-
7/17/00		-	7/17/00	-
7/18/00		-	7/18/00	-
7/19/00		4478.98	7/19/00	4503.51
7/20/00		-	7/20/00	-
7/24/00		-	7/24/00	-
8/28/00		-	8/28/00	-
8/29/00		-	8/29/00	-
8/30/00		4478.03	8/30/00	4492.24
9/28/00		-	9/28/00	-
9/29/00		-	9/29/00	-
9/30/00		4477.57	9/30/00	4493.23
10/1/00		-	10/1/00	-
10/28/00		4477.39	10/28/00	4490.34
12/4/00		-	12/4/00	4488.66
2/21/01		-	2/21/01	-
2/28/01		-	2/28/01	-
4/23/01		-	4/23/01	-
4/24/01		4477.4	4/24/01	4487.27
4/25/01		-	4/25/01	-
5/28/01		4477.41	5/28/01	4487.14
5/29/01		-	5/29/01	-
5/30/01		-	5/30/01	-
5/31/01		-	5/31/01	-
6/1/01		-	6/1/01	-
6/21/01		4478.85	6/21/01	4495.09
6/22/01		-	6/22/01	-
6/25/01		-	6/25/01	-
6/26/01		-	6/26/01	-
7/5/01		4478.91	7/5/01	4496.16
7/6/01		-	7/6/01	-
7/9/01		-	7/9/01	-
7/10/01		-	7/10/01	-
8/8/01		-	8/8/01	4492.14
8/11/01		4475.55	8/11/01	-

Water Level Measurements – Monitoring Wells

Measurement Date	Well ID: GKW3	Water Level Depth, in feet (Elevation Corrected)	Well ID: GKW4
5/19/00		-	5/19/00
5/22/00		4490.67	5/22/00
5/23/00		-	5/23/00
5/24/00		-	5/24/00
5/25/00		4492.44	5/25/00
5/30/00		-	5/30/00
6/1/00		-	6/1/00
6/2/00		4495.17	6/2/00
6/6/00		-	6/6/00
6/7/00		-	6/7/00
6/8/00		-	6/8/00
6/12/00		-	6/12/00
6/13/00		-	6/13/00
6/19/00		-	6/19/00
6/20/00		4495.38	6/20/00
6/26/00		-	6/26/00
6/27/00		-	6/27/00
6/28/00		-	6/28/00
6/29/00		4495.59	6/29/00
6/30/00		-	6/30/00
7/17/00		-	7/17/00
7/18/00		-	7/18/00
7/19/00		4495.39	7/19/00
7/20/00		-	7/20/00
7/24/00		-	7/24/00
8/28/00		-	8/28/00
8/29/00		-	8/29/00
8/30/00		4494.09	8/30/00
9/28/00		-	9/28/00
9/29/00		-	9/29/00
9/30/00		-	9/30/00
10/1/00		4493.53	10/1/00
10/28/00		4492.06	10/28/00
12/4/00		4490.87	12/4/00
2/21/01		-	2/21/01
2/28/01		4489.73	2/28/01
4/23/01		-	4/23/01
4/24/01		4489.84	4/24/01
4/25/01		-	4/25/01
5/28/01		4490.99	5/28/01
5/29/01		-	5/29/01
5/30/01		4492.18	5/30/01
5/31/01		-	5/31/01
6/1/01		-	6/1/01
6/21/01		4495.19	6/21/01
6/22/01		-	6/22/01
6/25/01		-	6/25/01
6/26/01		-	6/26/01
7/5/01		4494.52	7/5/01
7/6/01		-	7/6/01
7/9/01		-	7/9/01
7/10/01		-	7/10/01
8/8/01		4493.35	8/8/01
8/11/01		-	8/11/01

Water Level Measurements – Monitoring Wells

Measurement Date	Well ID: GKW5	Water Level Depth, in feet (Elevation Corrected)	Well ID: GKW6	Water Level Depth, in feet (Elevation Corrected)
5/1/00		-		-
5/18/00		-		-
5/19/00		-		-
5/22/00		-		-
5/23/00		4498.53		4551.12
5/24/00		-		-
5/25/00		4498.97		4538.27
5/30/00		-		-
6/1/00		-		-
6/2/00		4499.85		4536.69
6/6/00		-		-
6/7/00		-		-
6/8/00		-		-
6/12/00		-		-
6/13/00		-		-
6/19/00		-		-
6/20/00		4498.67		4536.66
6/26/00		-		-
6/27/00		-		-
6/28/00		-		4536.66
6/29/00		4501.3		-
6/30/00		-		-
7/17/00		-		GKW6
7/18/00		-		-
7/19/00		4498.6		-
7/20/00		-		4536.56
7/24/00		-		-
8/28/00		4498.3		-
8/29/00		-		-
8/30/00		-		-
9/28/00		-		-
9/29/00		-		-
9/30/00		4498.79		-
10/1/00		-		-
10/28/00		4498.77		-
12/4/00		4498.75		4536.52
2/21/01		-		-
2/28/01		4498.4		4536.58
4/23/01		-		-
4/24/01		4498.62		4536.62
4/25/01		-		-
5/28/01		-		-
5/29/01		-		-
5/30/01		4498.92		-
5/31/01		-		-
6/1/01		-		-
6/21/01		-		-
6/22/01		4499.49		-
7/5/01		-		-
7/6/01		-		-
7/9/01		4498.71		-
7/10/01		-		-
8/8/01		4498.66		-
8/11/01		-		-

Water Level Measurements – Monitoring Wells

Measurement Date	Well ID: GKW7	Water Level Depth, in feet (Elevation Corrected)	Well ID: GKW8	
5/1/00		-		
5/18/00		-		
5/19/00		-		
5/22/00		-		
5/23/00		-		
5/24/00	4509.61	4505.61	5/24/00	4492.11
5/25/00		-	5/25/00	-
5/30/00		4505.56	5/30/00	4492.73
6/1/00		-	6/1/00	-
6/2/00		4505.47	6/2/00	4492.9
6/8/00		-	6/8/00	-
6/12/00		-	6/12/00	-
6/13/00		-	6/13/00	-
6/19/00		-	6/19/00	-
6/20/00		4505.4	6/20/00	4492.52
6/26/00		-	6/26/00	-
6/27/00		-	6/27/00	-
6/28/00		-	6/28/00	-
6/29/00		4505.15	6/29/00	4492.17
6/30/00		-	6/30/00	-
7/17/00		-	7/17/00	-
7/18/00		-	7/18/00	-
7/19/00		-	7/19/00	4492.13
7/20/00		4504.59	7/20/00	-
7/24/00		-	7/24/00	-
8/28/00		-	8/28/00	-
8/29/00		-	8/29/00	4492.06
8/30/00		4504.49	8/30/00	-
9/28/00		-	9/28/00	-
9/29/00		-	9/29/00	4492.85
9/30/00		4505.03	9/30/00	-
10/1/00		-	10/1/00	-
10/28/00		4505.62	10/28/00	4492.84
12/4/00		4505.46	12/4/00	4492.75
2/21/01		4505.27	2/21/01	-
2/28/01		-	2/28/01	-
4/23/01		-	4/23/01	-
4/24/01		4505.76	4/24/01	4492.74
4/25/01		-	4/25/01	-
5/28/01		4505.57	5/28/01	-
5/29/01		-	5/29/01	-
5/30/01		-	5/30/01	4492.77
5/31/01		-	5/31/01	-
6/1/01		-	6/1/01	-
6/21/01		4505.61	6/21/01	4489.78
6/22/01		-	6/22/01	-
6/25/01		-	6/25/01	-
6/26/01		-	6/26/01	-
7/5/01		4505.19	7/5/01	-
7/6/01		-	7/6/01	4492.57
7/9/01		-	7/9/01	-
7/10/01		-	7/10/01	-
8/8/01		4505.2	8/8/01	4492.4
8/11/01		-	8/11/01	-

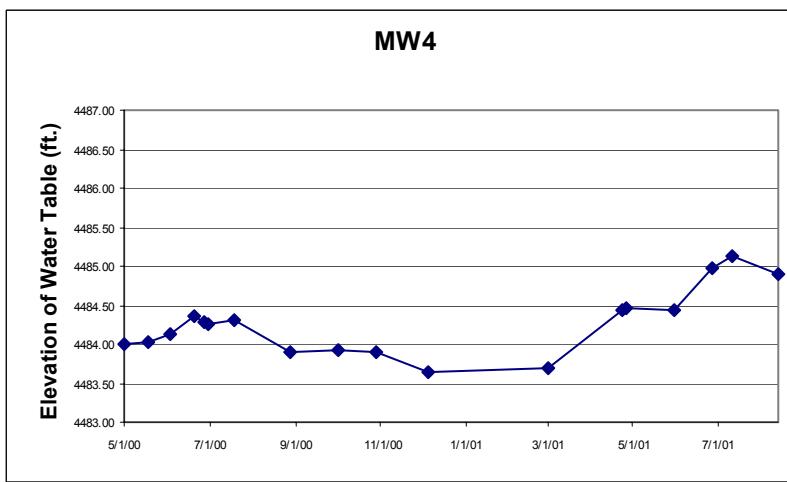
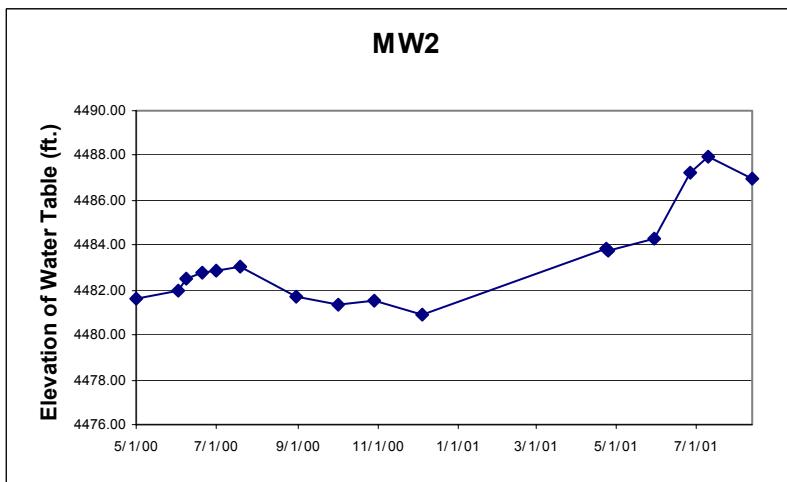
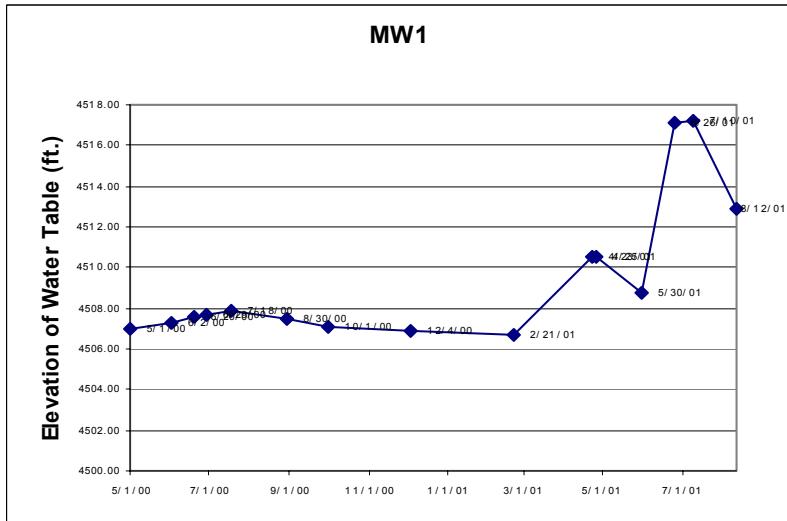
Water Level Measurements – Monitoring Wells

Measurement Date	Well ID: GKW9	Water Level Depth, in feet (Elevation Corrected)	Well ID: GKW10	Water Level Depth, in feet (Elevation Corrected)
5/1/00		-	5/1/00	-
5/22/00		-	5/22/00	-
5/23/00		-	5/23/00	4481.41
5/24/00		4488.93	5/24/00	-
5/25/00		4489.21	5/25/00	-
5/30/00		-	5/30/00	4481.7
6/1/00		-	6/1/00	-
6/2/00		4489.14	6/2/00	4481.99
6/6/00		-	6/6/00	-
6/7/00		-	6/7/00	-
6/8/00		-	6/8/00	-
6/12/00		-	6/12/00	-
6/13/00		-	6/13/00	-
6/19/00		-	6/19/00	-
6/20/00		4488.99	6/20/00	4481.59
6/26/00		-	6/26/00	-
6/27/00		-	6/27/00	-
6/28/00		-	6/28/00	-
6/29/00		4489.85	6/29/00	-
6/30/00		-	6/30/00	4481.13
7/17/00		-	7/17/00	-
7/18/00		-	7/18/00	4480.98
7/19/00		-	7/19/00	-
7/20/00		-	7/20/00	-
7/24/00		4490.13	7/24/00	-
8/28/00		-	8/28/00	4480.24
8/29/00		4488.49	8/29/00	-
8/30/00		-	8/30/00	-
9/28/00		-	9/28/00	-
9/29/00		-	9/29/00	-
9/30/00		4489.79	9/30/00	-
10/1/00		-	10/1/00	4480.62
10/28/00		4488.89	10/28/00	4480.12
12/4/00		4488.7	12/4/00	4479.66
2/21/01		-	2/21/01	-
2/28/01		4488.59	2/28/01	4479.68
4/23/01		-	4/23/01	4480.76
4/24/01		4488.86	4/24/01	-
4/25/01		-	4/25/01	4480.76
5/28/01		-	5/28/01	-
5/29/01		4490.27	5/29/01	-
5/30/01		-	5/30/01	4482.12
5/31/01		-	5/31/01	-
6/1/01		-	6/1/01	-
6/21/01		4489.79	6/21/01	-
6/22/01		-	6/22/01	-
6/25/01		-	6/25/01	-
6/26/01		-	6/26/01	4482.26
7/5/01		-	7/5/01	-
7/6/01		-	7/6/01	-
7/9/01		4490.56	7/9/01	-
7/10/01		-	7/10/01	4482.48
8/8/01		4488.86	8/8/01	4482.1
8/12/01		-	8/12/01	4481.98

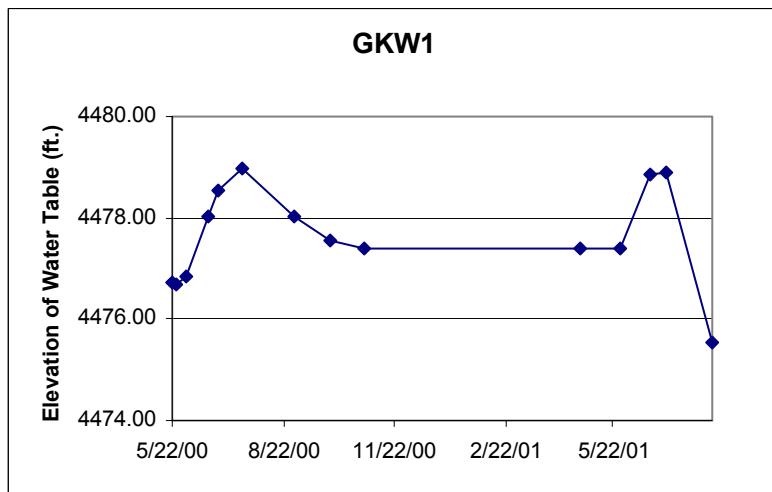
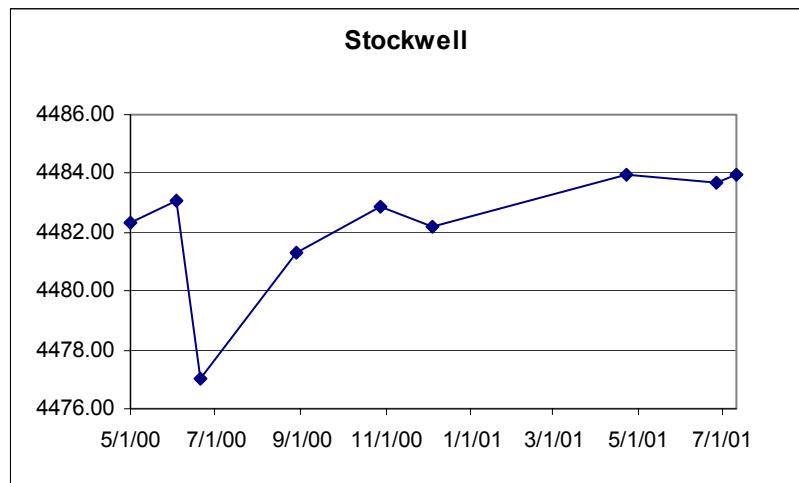
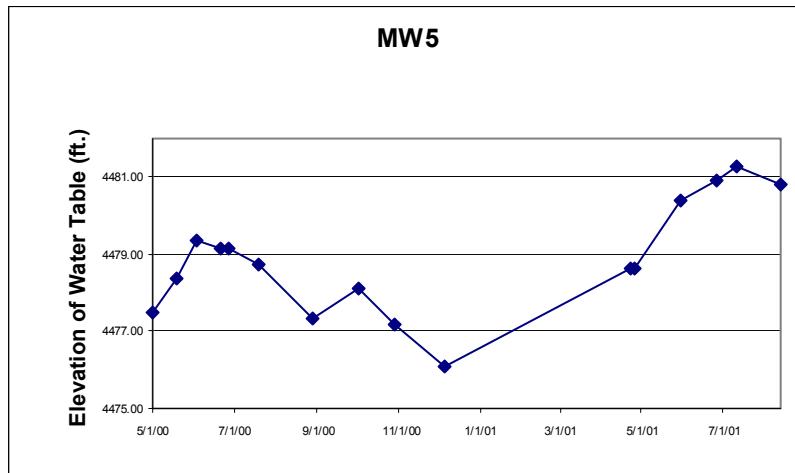
Water Level Measurements – Monitoring Wells

Measurement Date	Elevation of casing (ft):	Water Level Depth, in feet (Elevation Corrected)
5/1/00		-
5/18/00		-
5/19/00		-
5/22/00		-
5/23/00		-
5/24/00	4493.25	4481.92
5/25/00		-
5/30/00		4482.49
6/1/00		-
6/2/00		4482.63
6/6/00		-
6/12/00		-
6/13/00		-
6/19/00		-
6/20/00		4483.05
6/26/00		-
6/28/00		-
6/29/00		-
6/30/00		4483.8
7/17/00		-
7/18/00		4483.03
7/19/00		-
7/20/00		-
7/24/00		-
8/28/00		4482.14
8/29/00		-
8/30/00		-
9/29/00		-
9/30/00		-
10/1/00		4482.05
10/28/00		4482.04
12/4/00		4481.56
2/21/01		4481.66
2/28/01		-
4/23/01		4483.2
4/24/01		-
4/25/01		4483.22
5/28/01		-
5/29/01		-
5/30/01		-
5/31/01		4483.69
6/1/01		-
6/21/01		-
6/22/01		-
6/25/01		-
6/26/01		4484.98
7/5/01		-
7/6/01		-
7/9/01		-
7/10/01		4485.56
8/8/01		-
8/11/01		-

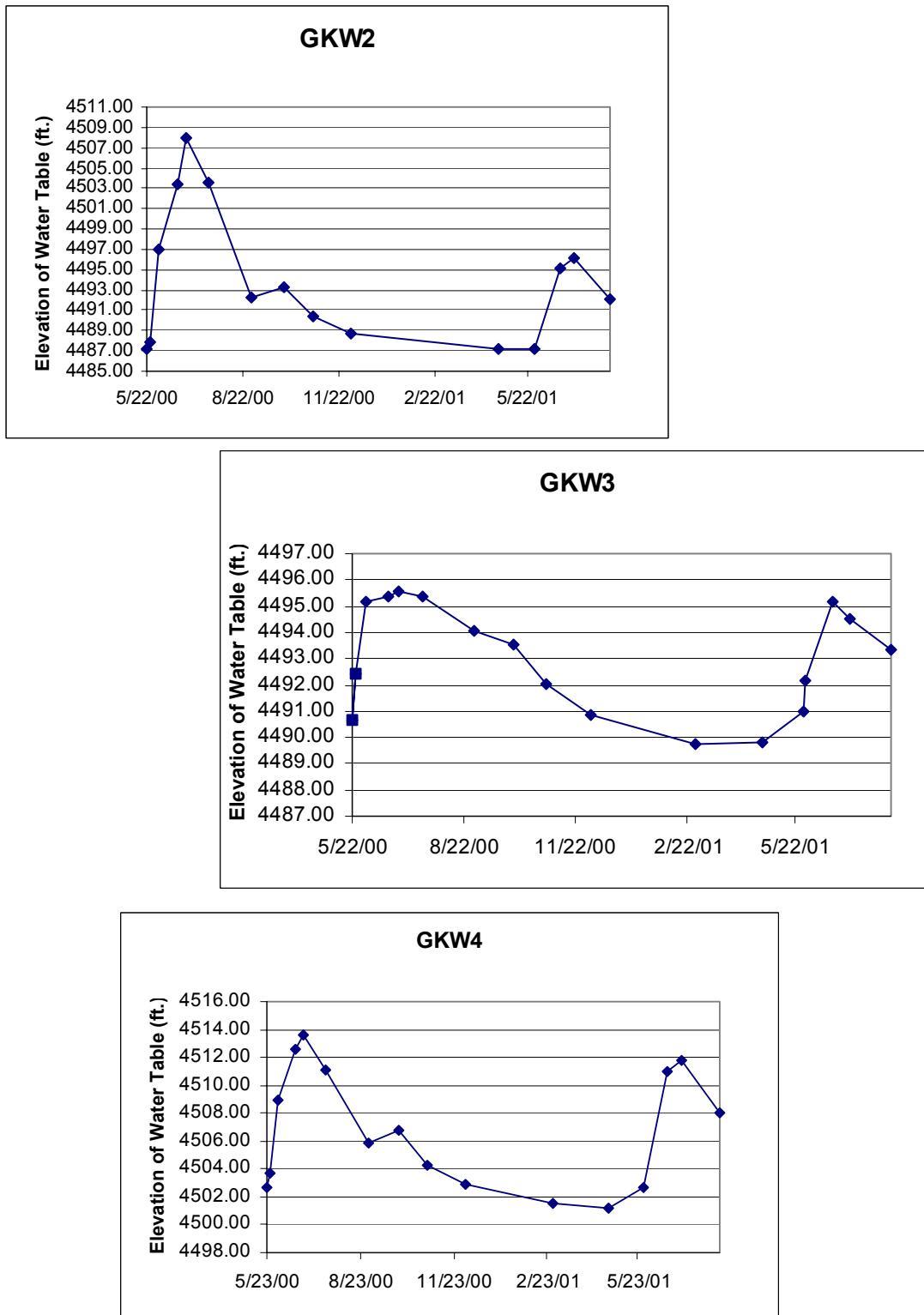
Water Level Measurements – Monitoring Wells



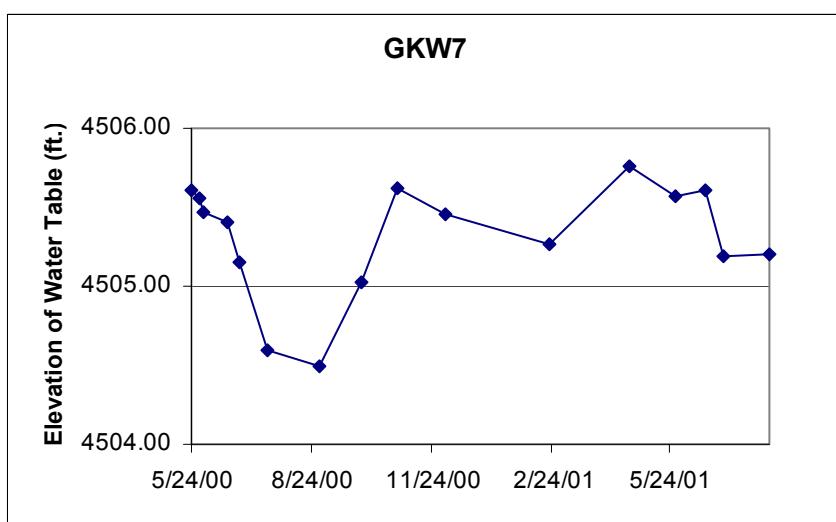
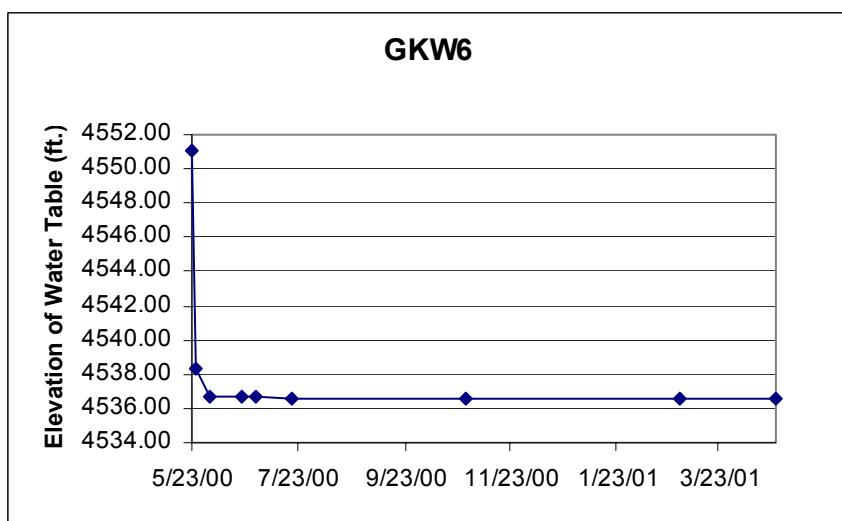
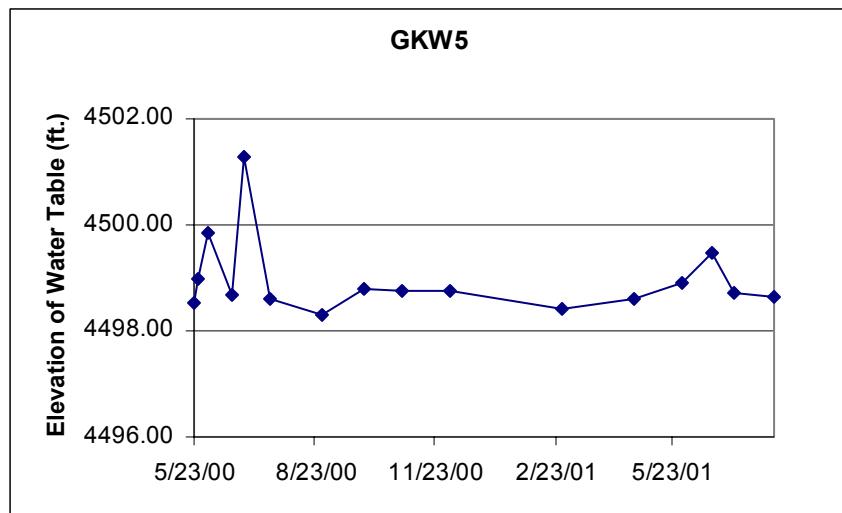
Water Level Measurements – Monitoring Wells



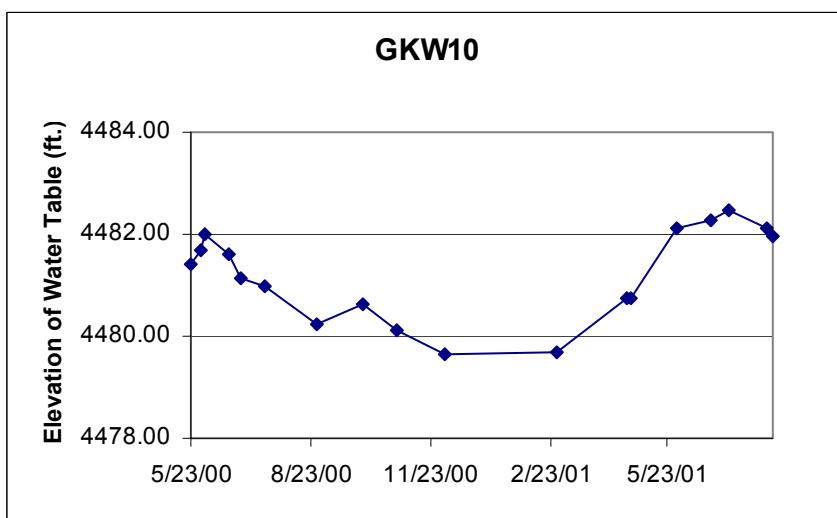
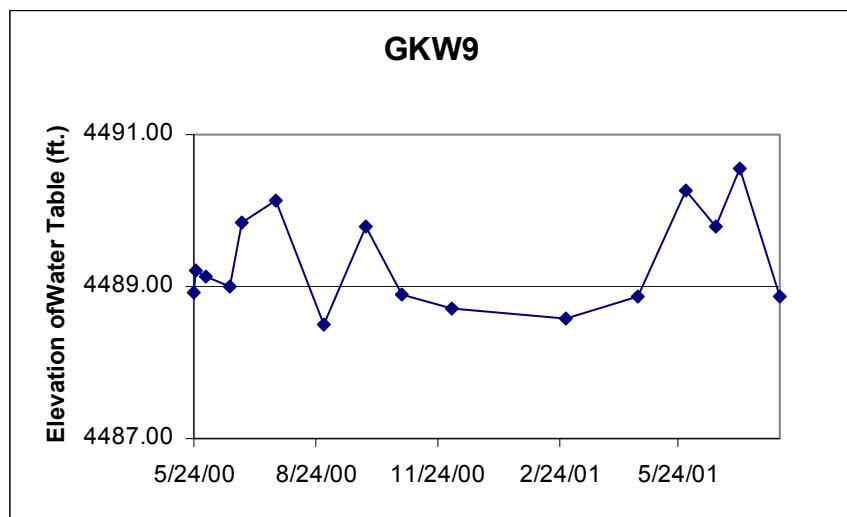
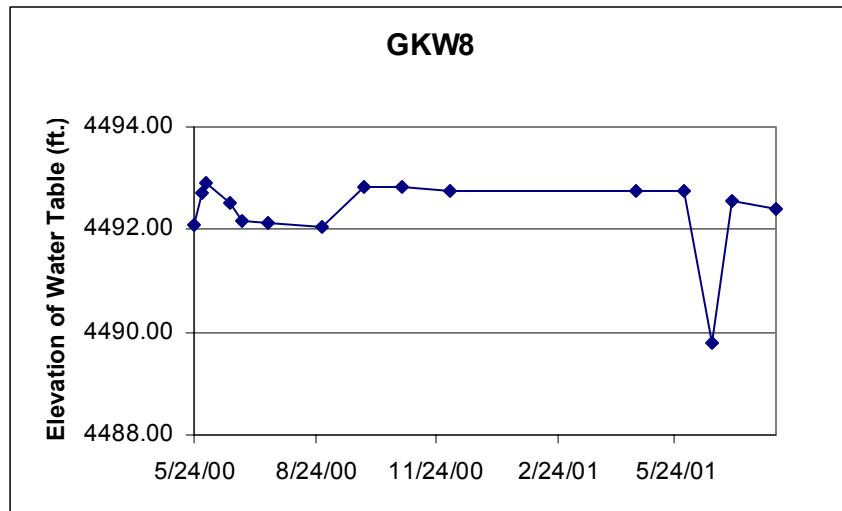
Water Level Measurements – Monitoring Wells



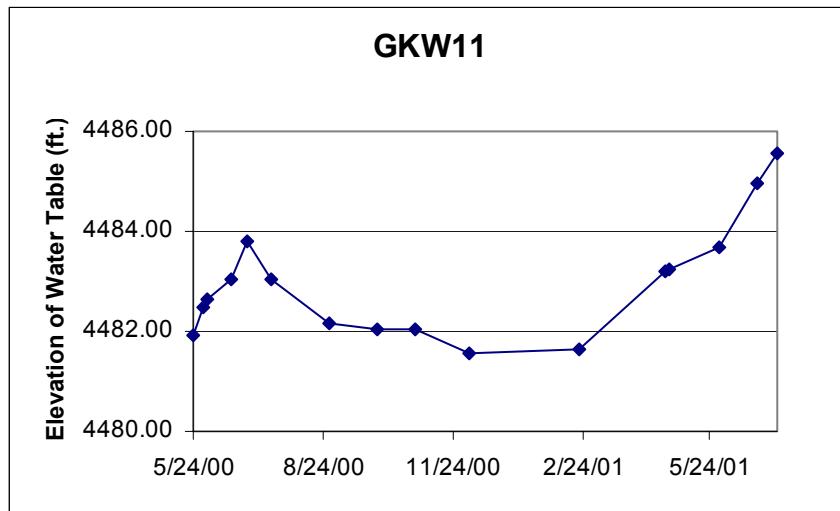
Water Level Measurements – Monitoring Wells



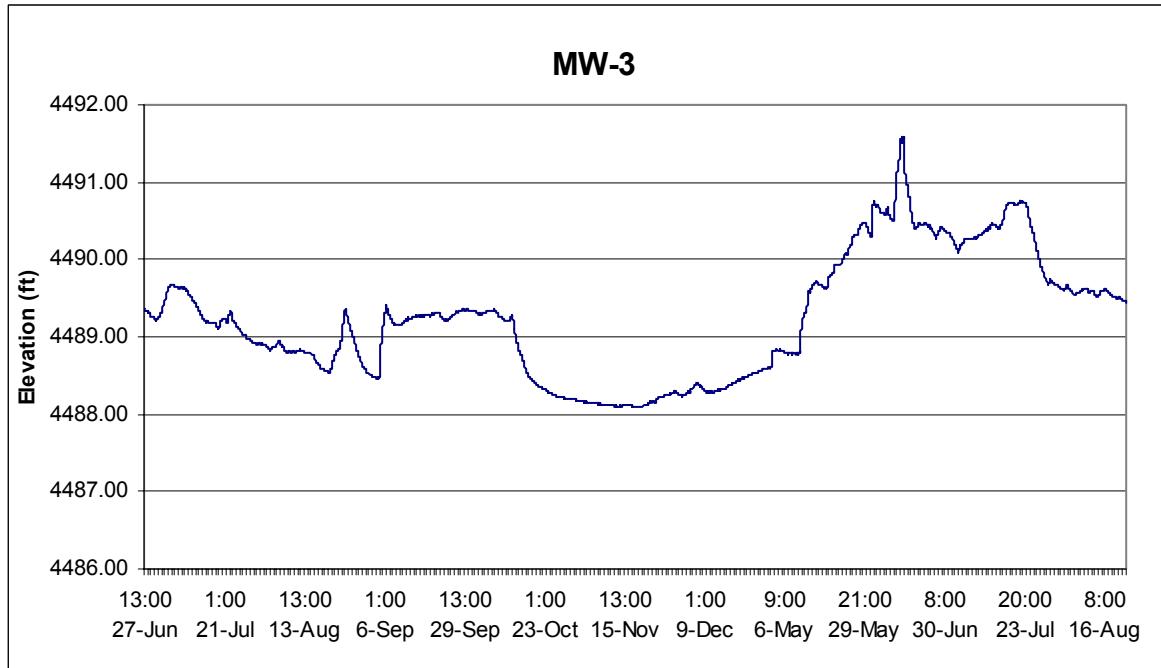
Water Level Measurements – Monitoring Wells



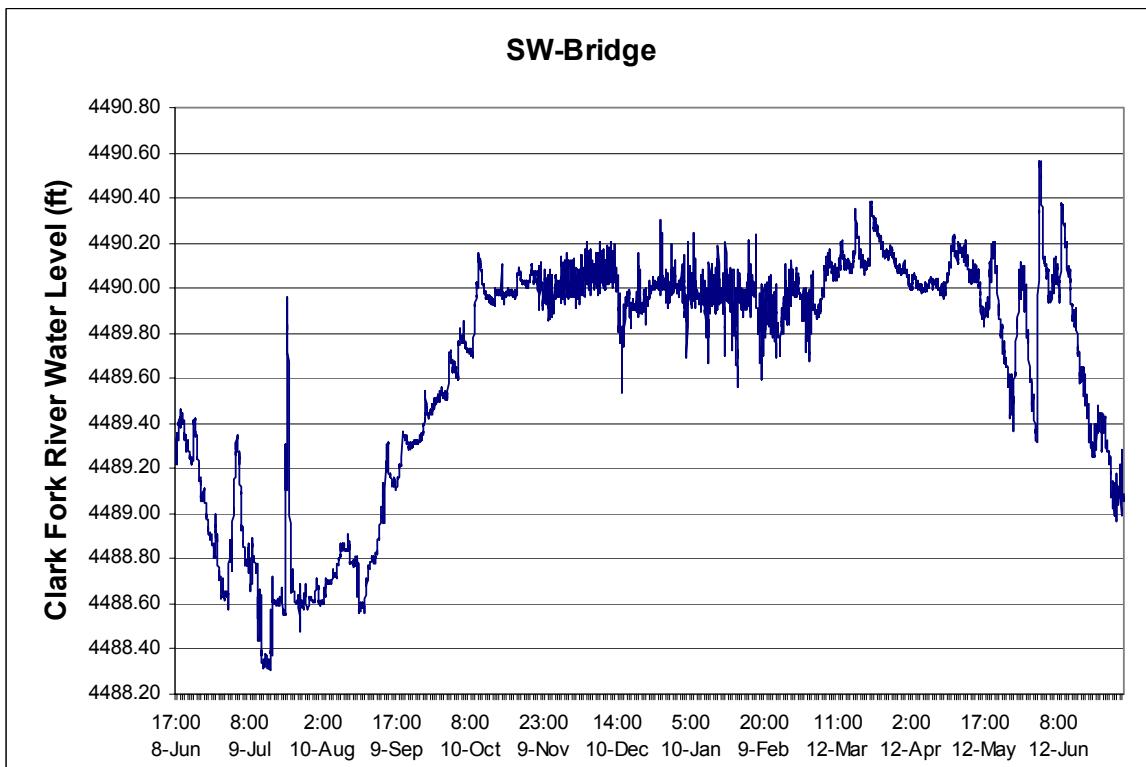
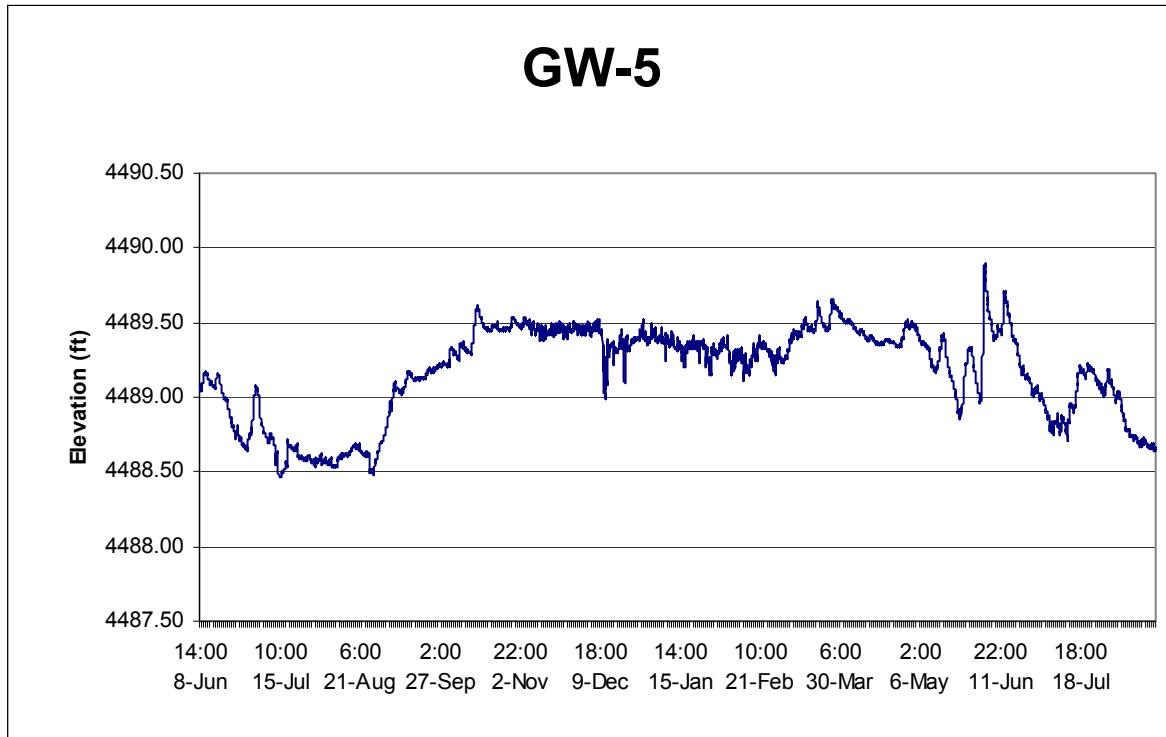
Water Level Measurements – Monitoring Wells



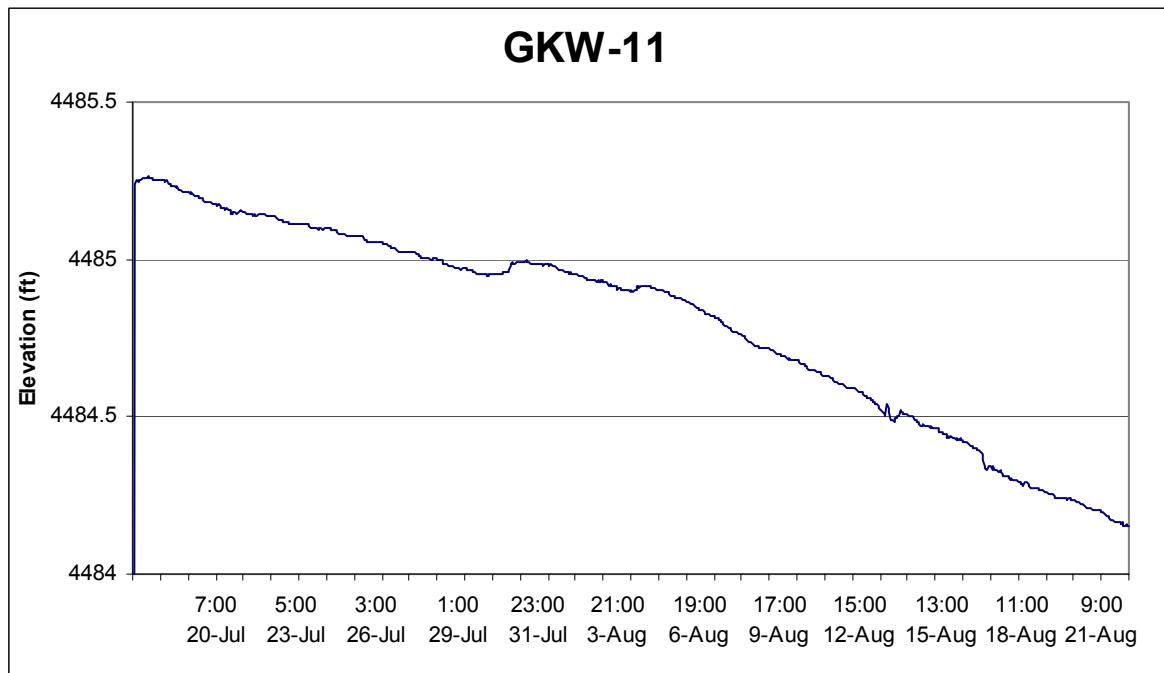
Continuous Water Level Measurements



Continuous Water Level Measurements



Continuous Water Level Measurements



Water Level Measurements – Multi-Level Wells

Well ID:	MLS3	Well ID:	MLS4
Elevation of casing (ft):	4493.42	Elevation of casing (ft):	4495.29
Measurement Date	Water Level Depth, in feet (Elevation Corrected)	Measurement Date	Water Level Depth, in feet (Elevation Corrected)
5/1/00	-	5/1/00	-
5/18/00	-	5/18/00	-
5/19/00	-	5/19/00	-
5/22/00	-	5/22/00	-
5/23/00	-	5/23/00	-
5/24/00	-	5/24/00	-
5/25/00	-	5/25/00	-
5/30/00	-	5/30/00	-
6/1/00	-	6/1/00	-
6/2/00	4488.68	6/2/00	-
6/6/00	-	6/6/00	-
6/7/00	-	6/7/00	-
6/8/00	-	6/8/00	-
6/12/00	-	6/12/00	-
6/13/00	-	6/13/00	-
6/19/00	-	6/19/00	-
6/20/00	4488.26	6/20/00	4484.14
6/26/00	-	6/26/00	-
6/27/00	4488.62	6/27/00	-
6/28/00	-	6/28/00	-
6/29/00	-	6/29/00	-
6/30/00	-	6/30/00	4484.09
7/17/00	-	7/17/00	-
7/18/00	-	7/18/00	4484.18
7/19/00	-	7/19/00	-
7/20/00	4488.53	7/20/00	-
7/24/00	-	7/24/00	-
8/28/00	4488.05	8/28/00	4483.73
8/29/00	-	8/29/00	-
8/30/00	-	8/30/00	-
9/28/00	-	9/28/00	-
9/29/00	-	9/29/00	-
9/30/00	-	9/30/00	-
10/1/00	4488.5	10/1/00	4483.74
10/28/00	4487.6	10/28/00	4483.71
12/4/00	4484.48	12/4/00	4483.44
2/21/01	-	2/21/01	-
2/28/01	-	2/28/01	4483.52
4/23/01	4488.22	4/23/01	4484.29
4/24/01	-	4/24/01	-
4/25/01	4488.22	4/25/01	4484.24
5/28/01	-	5/28/01	-
5/29/01	-	5/29/01	-
5/30/01	4489.39	5/30/01	4484.29
5/31/01	-	5/31/01	-
6/1/01	-	6/1/01	-
6/21/01	-	6/21/01	-
6/22/01	-	6/22/01	-
6/25/01	-	6/25/01	-
6/26/01	4489.62	6/26/01	4484.81
7/5/01	-	7/5/01	-
7/9/01	-	7/9/01	-
7/10/01	4489.46	7/10/01	4484.99
8/8/01	4489.02	8/8/01	-
8/11/01	-	8/11/01	-
8/12/01	-	8/12/01	4484.71

Water Level Measurements – Multi-Level Wells

Well ID:	MLS5	Well ID:	GKM1
Elevation of casing (ft):	4484.02	Elevation of casing (ft):	4499.79
Measurement Date	Water Level Depth, in feet (Elevation Corrected)	Measurement Date	Water Level Depth, in feet (Elevation Corrected)
5/1/00	-	5/1/00	-
5/18/00	-	5/18/00	-
5/19/00	-	5/19/00	-
5/22/00	-	5/22/00	-
5/23/00	-	5/23/00	-
5/24/00	-	5/24/00	-
5/25/00	-	5/25/00	-
5/30/00	-	5/30/00	-
6/1/00	-	6/1/00	-
6/2/00	4480.81	6/2/00	-
6/6/00	-	6/6/00	-
6/7/00	-	6/7/00	-
6/8/00	-	6/8/00	-
6/12/00	-	6/12/00	4496.08
6/13/00	-	6/13/00	-
6/19/00	-	6/19/00	4495.95
6/20/00	4479.51	6/20/00	-
6/26/00	-	6/26/00	-
6/27/00	4479.67	6/27/00	-
6/28/00	-	6/28/00	-
6/29/00	-	6/29/00	4495.75
6/30/00	-	6/30/00	-
7/17/00	-	7/17/00	4495.5
7/18/00	4479.21	7/18/00	-
7/19/00	-	7/19/00	-
7/20/00	-	7/20/00	-
7/24/00	-	7/24/00	-
8/28/00	4477.86	8/28/00	4495.63
8/29/00	-	8/29/00	-
8/30/00	-	8/30/00	-
9/28/00	-	9/28/00	-
9/29/00	-	9/29/00	-
9/30/00	-	9/30/00	4496.13
10/1/00	4478.54	10/1/00	-
10/28/00	4477.7	10/28/00	4496.14
12/4/00	4476.64	12/4/00	4496.02
2/21/01	-	2/21/01	-
2/28/01	-	2/28/01	4495.69
4/23/01	4479.17	4/23/01	-
4/24/01	-	4/24/01	4495.92
4/25/01	4479.14	4/25/01	-
5/28/01	-	5/28/01	-
5/29/01	-	5/29/01	-
5/30/01	4481.00	5/30/01	4496.32
5/31/01	-	5/31/01	-
6/1/01	-	6/1/01	-
6/21/01	-	6/21/01	-
6/22/01	-	6/22/01	4496.28
6/25/01	-	6/25/01	-
6/26/01	4481.80	6/26/01	-
7/5/01	-	7/5/01	-
7/9/01	-	7/9/01	4495.92
7/10/01	4482.26	7/10/01	-
8/8/01	-	8/8/01	-
8/11/01	-	8/11/01	4495.82
8/12/01	4481.56	8/12/01	-

Water Level Measurements – Multi-Level Wells

Well ID:	GKM2	Well ID:	GKM3
Elevation of casing (ft):	4495.15	Elevation of casing (ft):	4493.65
Measurement Date	Water Level Depth, in feet (Elevation Corrected)	Measurement Date	Water Level Depth, in feet (Elevation Corrected)
5/1/00	-	5/1/00	-
5/18/00	-	5/18/00	-
5/19/00	-	5/19/00	-
5/22/00	-	5/22/00	-
5/23/00	-	5/23/00	-
5/24/00	-	5/24/00	-
5/25/00	-	5/25/00	-
5/30/00	-	5/30/00	-
6/1/00	-	6/1/00	-
6/2/00	-	6/2/00	-
6/6/00	-	6/6/00	-
6/7/00	-	6/7/00	-
6/8/00	-	6/8/00	-
6/12/00	4491.58	6/12/00	4489.59
6/13/00	-	6/13/00	-
6/19/00	-	6/19/00	4489.62
6/20/00	4491.43	6/20/00	-
6/26/00	-	6/26/00	-
6/27/00	-	6/27/00	-
6/28/00	4491.23	6/28/00	4489.43
6/29/00	-	6/29/00	-
6/30/00	-	6/30/00	-
7/17/00	4490.92	7/17/00	4488.31
7/18/00	-	7/18/00	-
7/19/00	-	7/19/00	4488.78
7/20/00	-	7/20/00	-
7/24/00	-	7/24/00	-
8/28/00	-	8/28/00	-
8/29/00	4491.02	8/29/00	4488.21
8/30/00	-	8/30/00	-
9/28/00	-	9/28/00	-
9/29/00	-	9/29/00	4489.55
9/30/00	4491.72	9/30/00	-
10/1/00	-	10/1/00	-
10/28/00	4491.72	10/28/00	4489.25
12/4/00	4491.78	12/4/00	4489.43
2/21/01	-	2/21/01	-
2/28/01	-	2/28/01	4489.14
4/23/01	-	4/23/01	-
4/24/01	4491.72	4/24/01	4489.27
4/25/01	-	4/25/01	-
5/28/01	-	5/28/01	4489.33
5/29/01	4491.75	5/29/01	-
5/30/01	-	5/30/01	-
5/31/01	-	5/31/01	-
6/1/01	-	6/1/01	-
6/21/01	-	6/21/01	-
6/22/01	4491.61	6/22/01	4489.77
6/25/01	-	6/25/01	-
6/26/01	-	6/26/01	-
7/5/01	-	7/5/01	4489.23
7/9/01	4491.38	7/9/01	-
7/10/01	-	7/10/01	-
8/8/01	-	8/8/01	-
8/11/01	4491.23	8/11/01	4489.1
8/12/01	-	8/12/01	-

Water Level Measurements – Multi-Level Wells

Well ID:	GKM4	Well ID:	GKM5
Elevation of casing (ft):	4484.06	Elevation of casing (ft):	4493.84
Measurement Date	Water Level Depth, in feet (Elevation Corrected)	Measurement Date	Water Level Depth, in feet (Elevation Corrected)
5/1/00	-	5/1/00	-
5/18/00	-	5/18/00	-
5/19/00	-	5/19/00	-
5/22/00	-	5/22/00	-
5/23/00	-	5/23/00	-
5/24/00	-	5/24/00	-
5/25/00	-	5/25/00	-
5/30/00	-	5/30/00	-
6/1/00	-	6/1/00	-
6/2/00	-	6/2/00	4489.4
6/6/00	-	6/6/00	4488.89
6/7/00	-	6/7/00	-
6/8/00	-	6/8/00	-
6/12/00	4480.02	6/12/00	-
6/13/00	-	6/13/00	4489.09
6/19/00	4480	6/19/00	4489.03
6/20/00	-	6/20/00	-
6/26/00	-	6/26/00	-
6/27/00	-	6/27/00	-
6/28/00	4479.66	6/28/00	4488.82
6/29/00	-	6/29/00	-
6/30/00	-	6/30/00	-
7/17/00	-	7/17/00	4487.14
7/18/00	-	7/18/00	-
7/19/00	-	7/19/00	4487.69
7/20/00	4479.63	7/20/00	-
7/24/00	-	7/24/00	-
8/28/00	-	8/28/00	-
8/29/00	-	8/29/00	4488.29
8/30/00	4479.47	8/30/00	-
9/28/00	-	9/28/00	-
9/29/00	-	9/29/00	-
9/30/00	-	9/30/00	4489.21
10/1/00	4479.91	10/1/00	-
10/28/00	4480.12	10/28/00	4489.82
12/4/00	-	12/4/00	4489.49
2/21/01	-	2/21/01	-
2/28/01	-	2/28/01	4489.18
4/23/01	-	4/23/01	-
4/24/01	4480.08	4/24/01	4489.25
4/25/01	-	4/25/01	-
5/28/01	-	5/28/01	4489.32
5/29/01	-	5/29/01	-
5/30/01	-	5/30/01	-
5/31/01	4479.87	5/31/01	-
6/1/01	-	6/1/01	-
6/21/01	-	6/21/01	-
6/22/01	4479.81	6/22/01	4489.15
6/25/01	-	6/25/01	-
6/26/01	-	6/26/01	-
7/5/01	-	7/5/01	4488.74
7/9/01	-	7/9/01	-
7/10/01	-	7/10/01	-
8/8/01	-	8/8/01	-
8/11/01	4479.6	8/11/01	4488.22
8/12/01	-	8/12/01	-

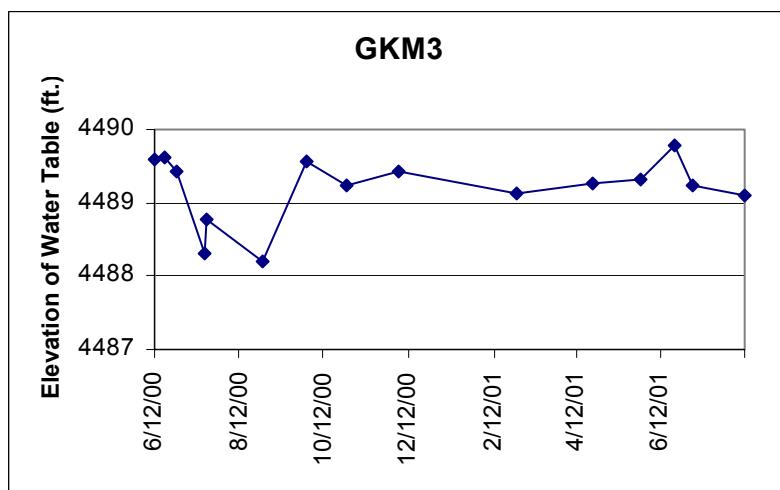
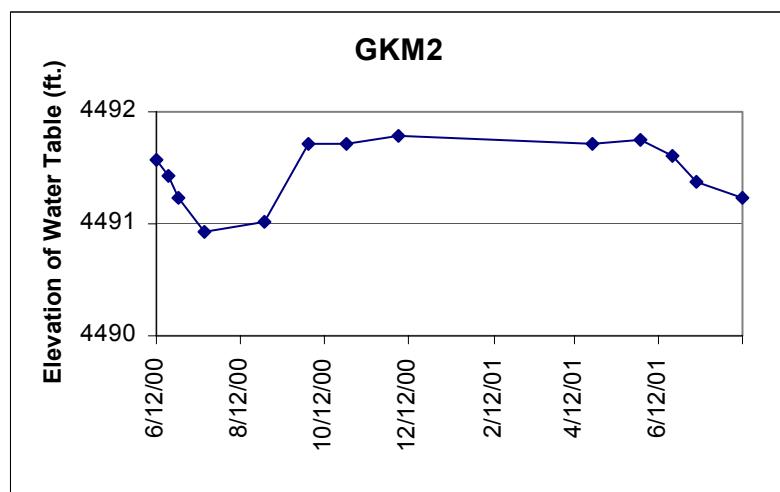
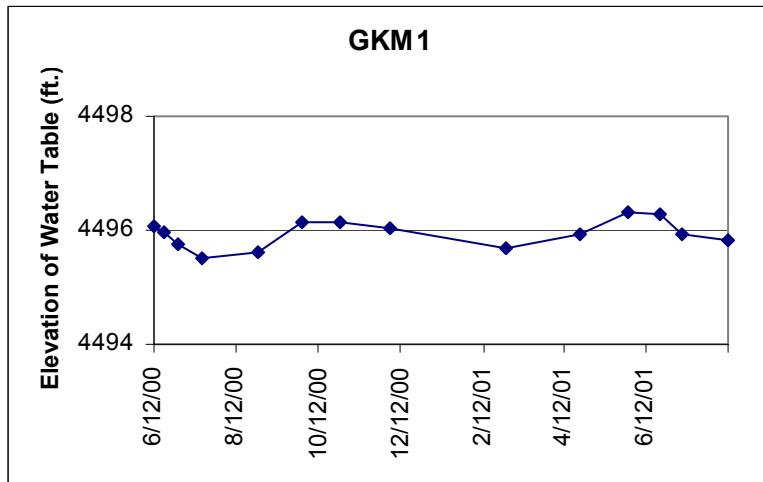
Water Level Measurements – Multi-Level Wells

Measurement Date	Well ID:	Elevation of casing (ft):	Water Level Depth, in feet (Elevation Corrected)	Well ID:	Elevation of casing (ft):	Water Level Depth, in feet (Elevation Corrected)
5/1/00	GKM6	4499.63	-	GKM7	4492.72	-
5/18/00			-			-
5/19/00			-			-
5/22/00			-			-
5/23/00			-			-
5/24/00			-			-
5/25/00			-			-
5/30/00			-			-
6/1/00			-			-
6/2/00			-			-
6/6/00			-			-
6/7/00			-			-
6/8/00			-			-
6/12/00		4495.23				4487.48
6/13/00			-			-
6/19/00			-			-
6/20/00		4495.14				-
6/26/00		4494.83				4487.19
6/27/00			-			-
6/28/00			-			-
6/29/00			-			-
6/30/00			-			-
7/17/00			-			-
7/18/00			-			-
7/19/00			-			-
7/20/00			-			-
7/24/00		4494.55				4487.04
8/28/00			-			-
8/29/00		4494.68				4487.03
8/30/00			-			-
9/28/00			-			-
9/29/00		4495.47				4487.9
9/30/00			-			-
10/1/00			-			-
10/28/00		4495.51				4487.94
12/4/00		4495.53				4487.92
2/21/01			-			-
2/28/01		4495.33				4495.33
4/23/01			-			-
4/24/01		4495.48				4495.48
4/25/01			-			-
5/28/01			-			-
5/29/01		4495.42				4495.42
5/30/01			-			-
5/31/01			-			-
6/1/01			-			-
6/21/01			-			-
6/22/01		4495.26				4495.26
6/25/01			-			-
6/26/01			-			-
7/5/01			-			-
7/9/01		4495.01				4495.01
7/10/01			-			-
8/8/01			-			-
8/11/01		4494.8				4494.8
8/12/01			-			-

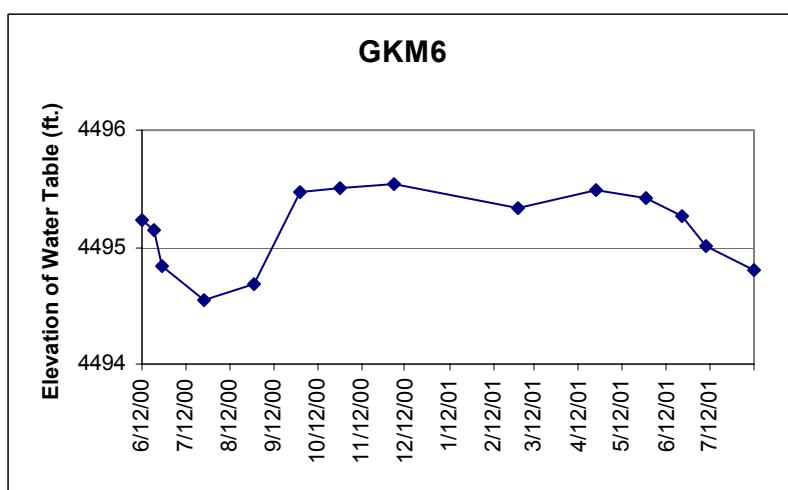
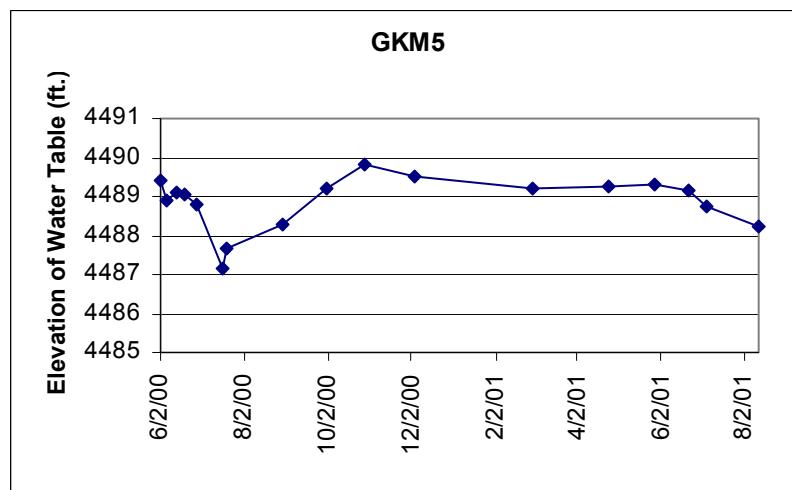
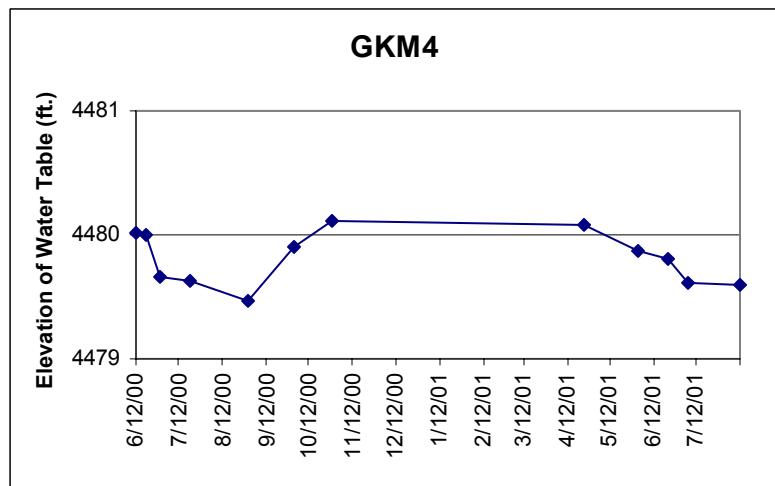
Water Level Measurements – Multi-Level Wells

Measurement Date	Well ID:	Water Level Depth, in feet (Elevation Corrected)	Well ID:	Water Level Depth, in feet (Elevation Corrected)
5/1/00	GKM8	-	5/1/00	-
5/18/00		-	5/18/00	-
5/19/00		-	5/19/00	-
5/22/00		-	5/22/00	-
5/23/00		-	5/23/00	-
5/24/00		-	5/24/00	-
5/25/00		-	5/25/00	-
5/30/00		-	5/30/00	-
6/1/00		-	6/1/00	-
6/2/00		-	6/2/00	-
6/6/00		-	6/6/00	-
6/7/00		-	6/7/00	-
6/8/00		-	6/8/00	-
6/12/00		-	6/12/00	-
6/13/00		-	6/13/00	-
6/19/00		-	6/19/00	-
6/20/00		-	6/20/00	-
6/26/00	4487.64	4483.29	6/26/00	4479.27
6/27/00		-	6/27/00	-
6/28/00		-	6/28/00	-
6/29/00		-	6/29/00	-
6/30/00		-	6/30/00	-
7/17/00		-	7/17/00	-
7/18/00		-	7/18/00	-
7/19/00		-	7/19/00	-
7/20/00		4481.89	7/20/00	4479.17
7/24/00		-	7/24/00	-
8/28/00		-	8/28/00	-
8/29/00		4482.41	8/29/00	4479.11
8/30/00		-	8/30/00	-
9/28/00		-	9/28/00	-
9/29/00		4483.7	9/29/00	4479.71
9/30/00		-	9/30/00	-
10/1/00		-	10/1/00	-
10/28/00		4483.89	10/28/00	4479.88
12/4/00		4482.69	12/4/00	4479.91
2/21/01		-	2/21/01	-
2/28/01		-	2/28/01	4479.71
4/23/01		-	4/23/01	-
4/24/01		4483.87	4/24/01	4479.40
4/25/01		-	4/25/01	-
5/28/01		-	5/28/01	-
5/29/01		4483.78	5/29/01	-
5/30/01		-	5/30/01	-
5/31/01		-	5/31/01	4479.60
6/1/01		-	6/1/01	-
6/21/01		-	6/21/01	-
6/22/01		4483.47	6/22/01	4479.44
6/25/01		-	6/25/01	-
6/26/01		-	6/26/01	-
7/5/01		-	7/5/01	-
7/9/01		-	7/9/01	-
7/10/01		-	7/10/01	-
8/8/01		-	8/8/01	-
8/11/01		4483.23	8/11/01	4479.28
8/12/01		-	8/12/01	-

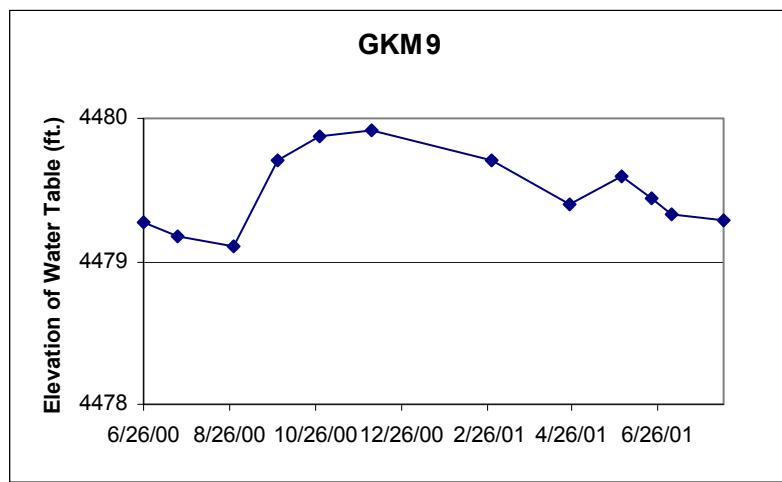
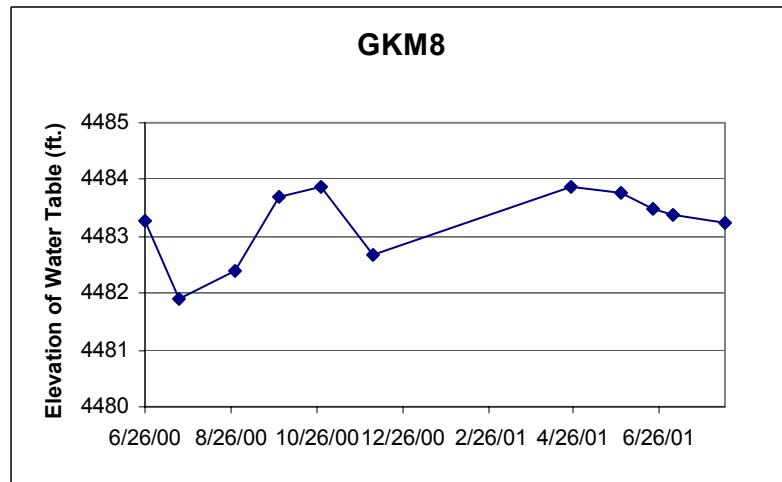
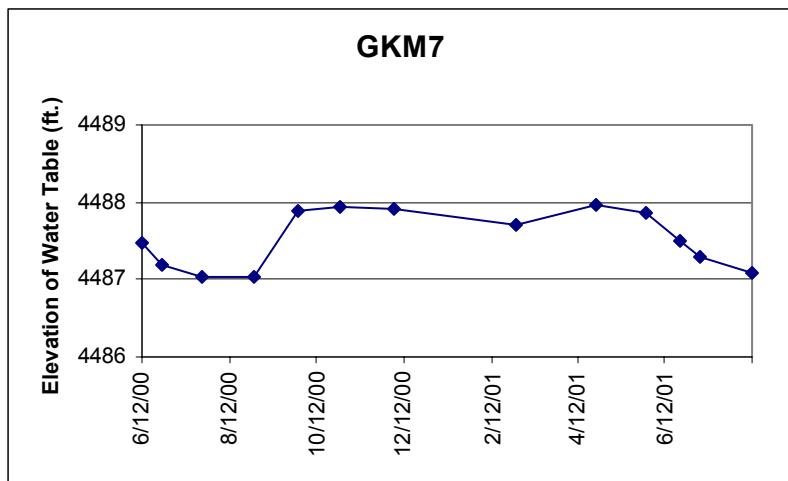
Water Level Measurements – Multi-Level Wells



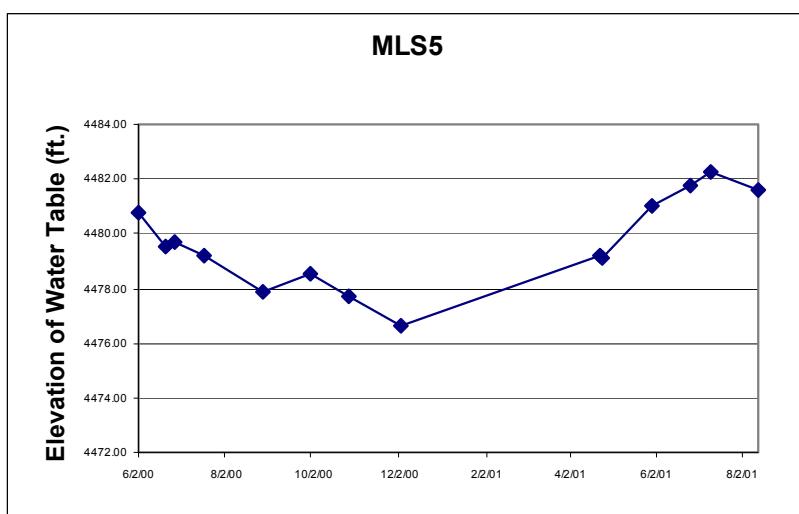
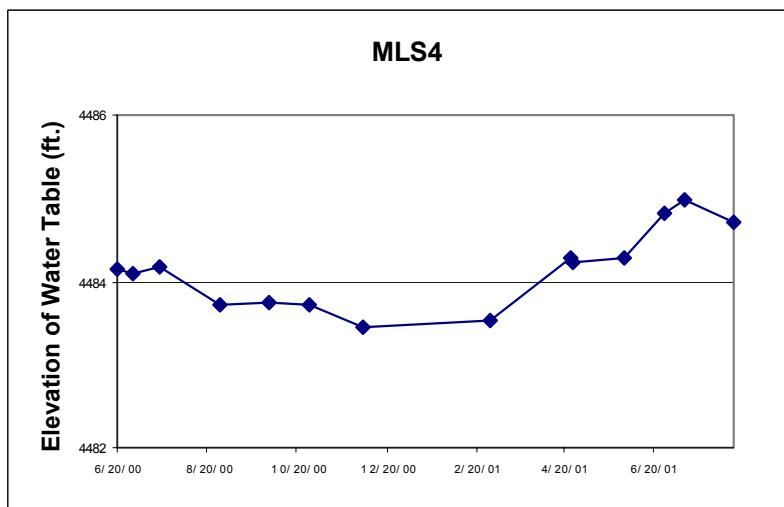
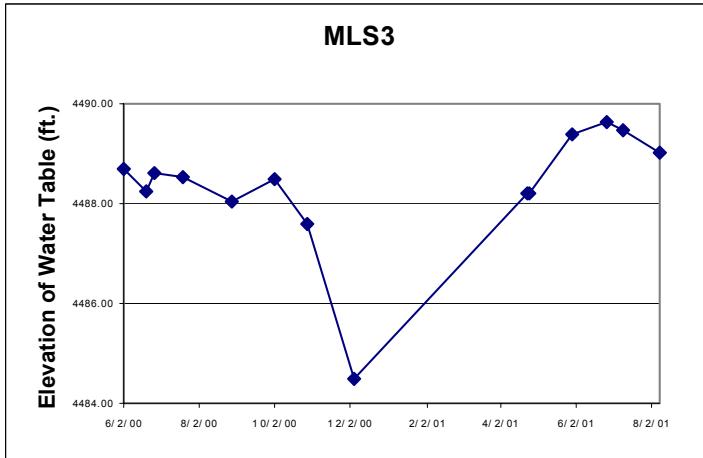
Water Level Measurements – Multi-Level Wells



Water Level Measurements – Multi-Level Wells



Water Level Measurements – Multi-Level Wells



Water Level Measurements – Staff Gauges

Measurement Date	Gauge ID:	Elevation of casing (ft):	Water Level Depth, in feet (Elevation Corrected)	Gauge ID:	Elevation of casing (ft):	Water Level Depth, in feet (Elevation Corrected)
5/1/00	CFSG1	-	-	CFSG2 (bridge)	-	-
5/18/00		-	-		-	-
5/19/00		-	-		-	-
5/22/00		-	-		-	-
5/23/00		-	-		-	-
5/24/00		-	-		-	-
5/25/00		-	-		-	-
5/30/00		-	-		-	-
6/1/00		4496.71	4498.51		-	-
6/2/00			4498.4		-	-
6/6/00		-	-		-	-
6/7/00		-	-		-	-
6/8/00		-	-		4489.29	-
6/12/00		-	-		-	-
6/13/00		-	-		4489.34	-
6/19/00		-	-		-	-
6/20/00		4498.09	4498.09		4489.15	-
6/26/00		-	-		-	-
6/27/00		-	-		4488.76	-
6/28/00		-	-		-	-
6/29/00		4497.99	4497.99		-	-
6/30/00		-	-		-	-
7/17/00		-	-		-	-
7/18/00		-	-		-	-
7/19/00		4498.01	4498.01		-	-
7/20/00		-	-		-	-
7/24/00		-	-		4488.59	-
8/28/00		4498.07	4498.07		-	-
8/29/00		-	-		-	-
8/30/00		-	-		-	-
9/28/00		-	-		-	-
9/29/00		-	-		4489.59	-
9/30/00		4498.43	4498.43		-	-
10/1/00		-	-		-	-
10/28/00		4498.67	4498.67		-	-
12/4/00		4498.61	4498.61		-	-
2/21/01		-	-		-	-
2/28/01		4495.03	4495.03		-	-
4/23/01		-	-		-	-
4/24/01		4494.81	4494.81		-	-
4/25/01		-	-		-	-
5/28/01		-	-		-	-
5/29/01		-	-		4489.85	-
5/30/01		4494.99	4494.99		-	-
5/31/01		-	-		-	-
6/1/01		-	-		-	-
6/21/01		-	-		-	-
6/22/01		4495.11	4495.11		-	-
6/25/01		-	-		4489.16	-
6/26/01		-	-		-	-
7/5/01		-	-		-	-
7/9/01		4495.31	4495.31		4484.23	-
7/10/01		-	-		-	-
8/8/01		4495.14	4495.14		-	-
8/11/01		-	-		4484.09	-
8/12/01		-	-		-	-

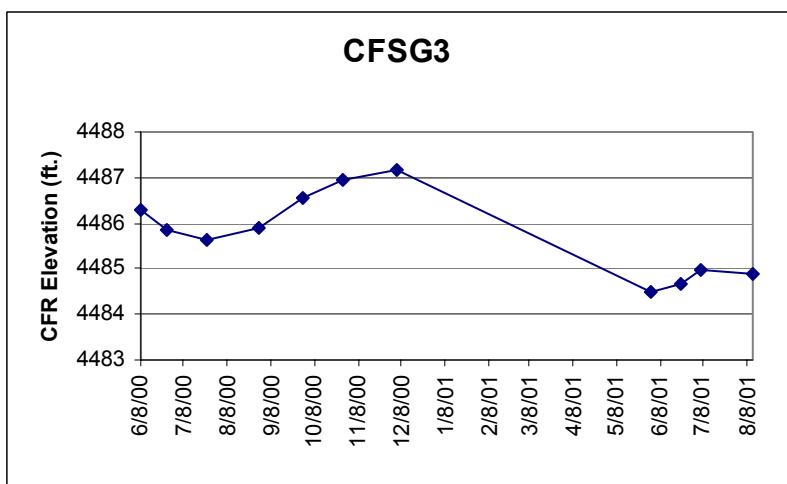
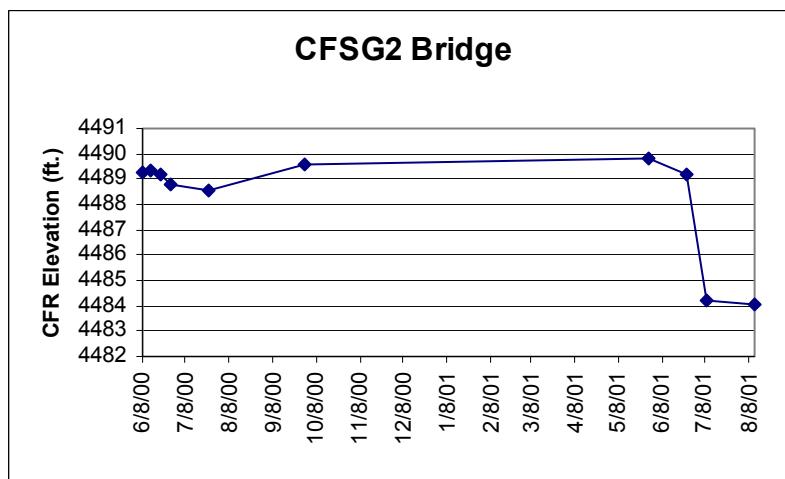
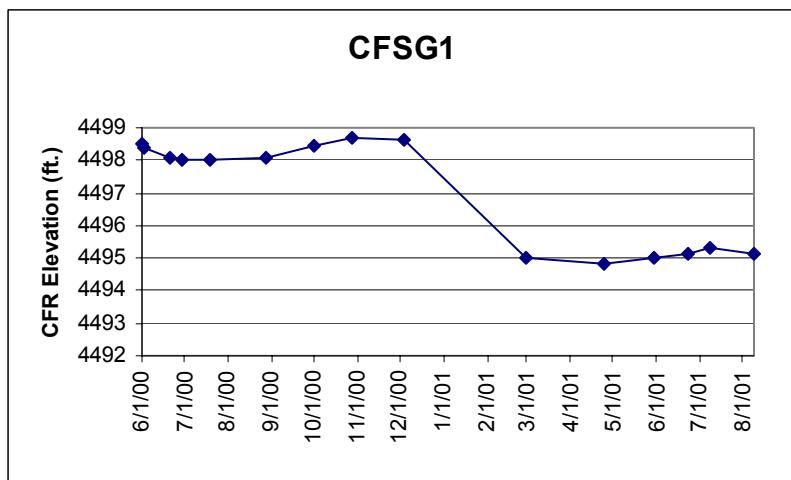
Water Level Measurements – Staff Gauges

Measurement Date	Gauge ID:	Elevation of casing (ft):	Water Level Depth, in feet (Elevation Corrected)	Gauge ID:	Elevation of casing (ft):	Water Level Depth, in feet (Elevation Corrected)
5/1/00	CFSG3	-	-	CFSG4	-	-
5/18/00		4484.35	-		-	-
5/19/00			-		-	-
5/22/00			-		-	-
5/23/00			-		-	-
5/24/00			-		-	-
5/25/00			-		-	-
5/30/00			-		-	-
6/1/00			-		-	-
6/2/00			-		-	-
6/6/00			-		-	-
6/7/00			-		-	-
6/8/00		4486.3			-	-
6/12/00			-		-	-
6/13/00			-		-	-
6/19/00			-		-	-
6/20/00			-		-	-
6/26/00		4485.85			-	-
6/27/00			-		-	-
6/28/00			-		-	-
6/29/00			-		-	-
6/30/00			-		-	-
7/17/00			-		-	-
7/18/00			-		-	-
7/19/00			-		-	-
7/20/00			-		-	-
7/24/00		4485.65			-	-
8/28/00			-		-	-
8/29/00		4485.89			-	-
8/30/00			-		-	-
9/28/00			-		-	-
9/29/00		4486.55			-	-
9/30/00			-		-	-
10/1/00			-		-	-
10/28/00		4486.95			-	-
12/4/00		4487.15			-	-
2/21/01			-		-	-
2/28/01			-		-	-
4/23/01			-		-	-
4/24/01			-		-	-
4/25/01			-		-	-
5/28/01			-		-	-
5/29/01			-		-	-
5/30/01			-		-	-
5/31/01			-		-	-
6/1/01		4484.51			-	-
6/21/01			-		-	-
6/22/01		4484.67			-	-
6/25/01			-		-	-
6/26/01			-		-	-
7/5/01			-		-	-
7/9/01			-		-	-
7/10/01			-		-	-
8/8/01			-		-	-
8/11/01		4484.89			-	-
8/12/01			-		-	-
					4479.11	
						4479.88
					4481.62	
					4481.31	
					4481.21	
					4481.3	
					4481.79	
					4482.09	
					4481.81	
					4479.79	
					4479.88	
					4480.08	

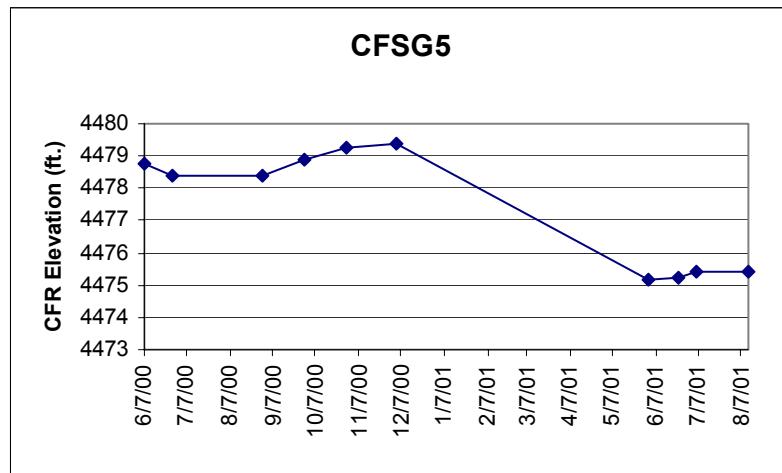
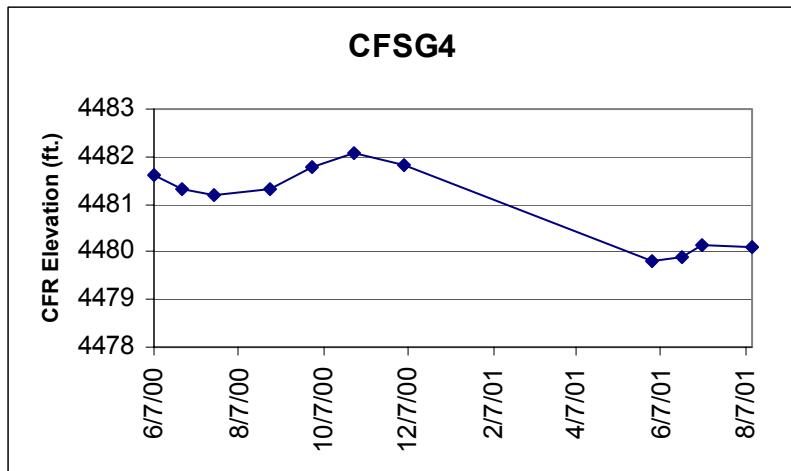
Water Level Measurements – Staff Gauges

Gauge ID:	CFSG5
Elevation of casing (ft):	4477.07
Measurement Date	Water Level Depth, in feet (Elevation Corrected)
5/1/00	-
5/18/00	-
5/19/00	-
5/22/00	-
5/23/00	-
5/24/00	-
5/25/00	-
5/30/00	-
6/1/00	-
6/2/00	-
6/6/00	-
6/7/00	4478.77
6/8/00	-
6/12/00	-
6/13/00	-
6/19/00	-
6/20/00	-
6/26/00	4478.39
6/27/00	-
6/28/00	-
6/29/00	-
6/30/00	-
7/17/00	-
7/18/00	-
7/19/00	-
7/20/00	-
7/24/00	-
8/28/00	-
8/29/00	4478.37
8/30/00	-
9/28/00	-
9/29/00	4478.87
9/30/00	-
10/1/00	-
10/28/00	4479.27
12/4/00	4479.37
2/21/01	-
2/28/01	-
4/23/01	-
4/24/01	-
4/25/01	-
5/28/01	-
5/29/01	-
5/30/01	-
5/31/01	-
6/1/01	4475.16
6/21/01	-
6/22/01	4475.21
6/25/01	-
6/26/01	-
7/5/01	-
7/9/01	-
7/10/01	-
8/8/01	-
8/11/01	4475.39
8/12/01	-

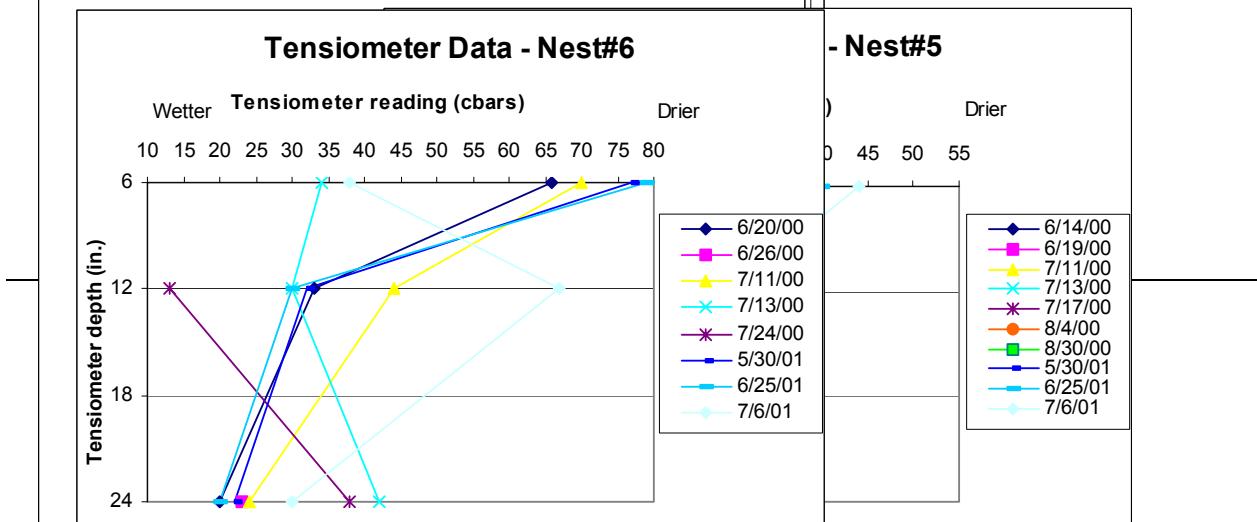
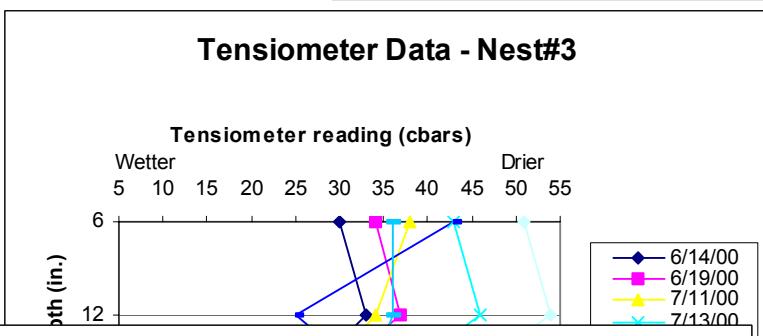
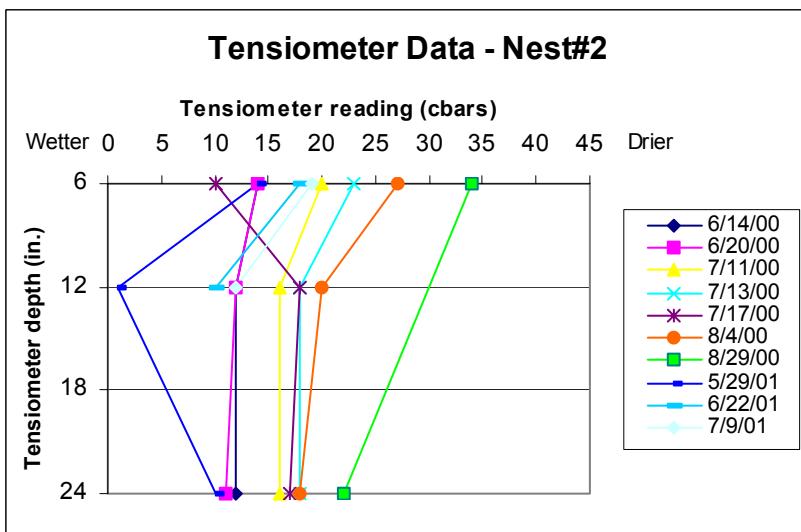
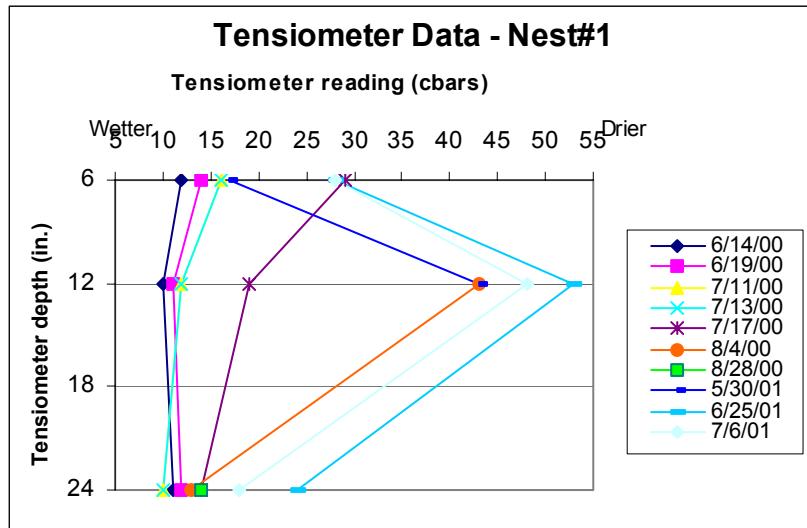
Water Level Measurements – Staff Gauges



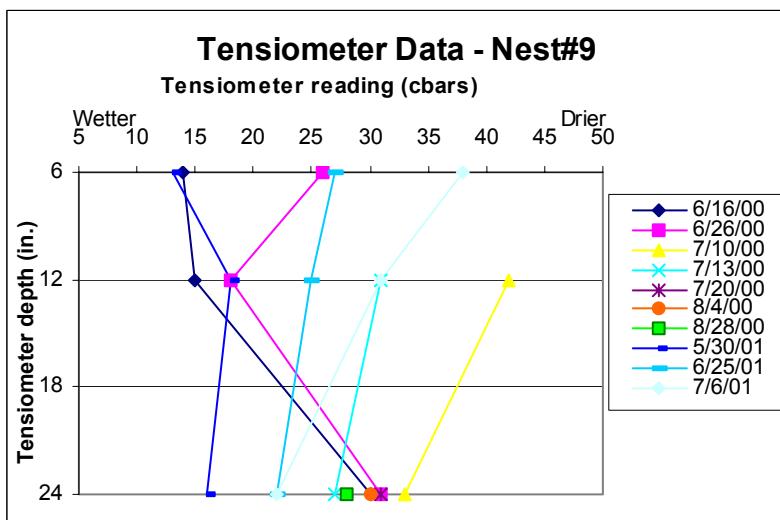
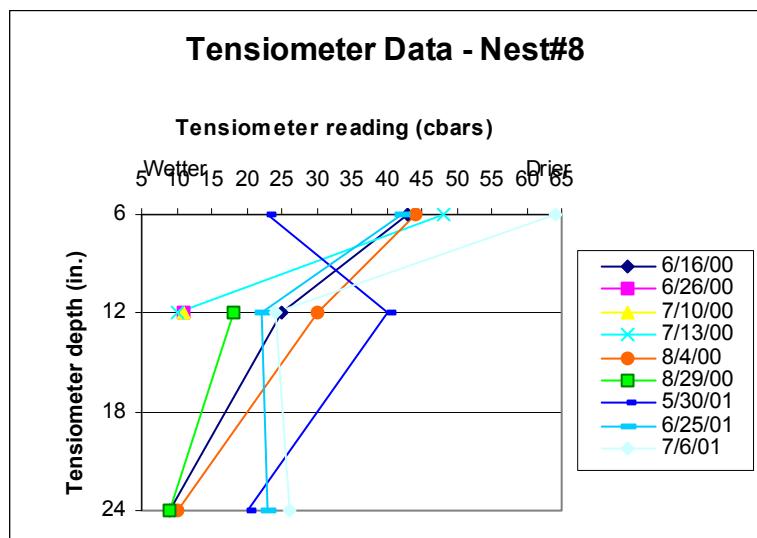
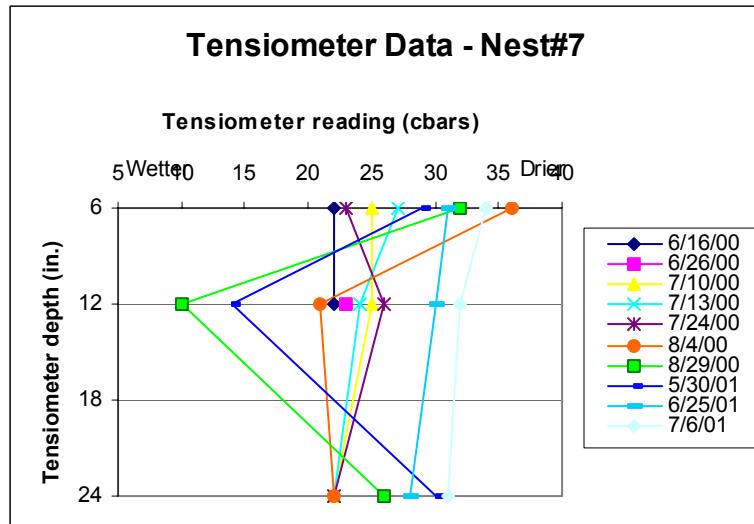
Water Level Measurements – Staff Gauges



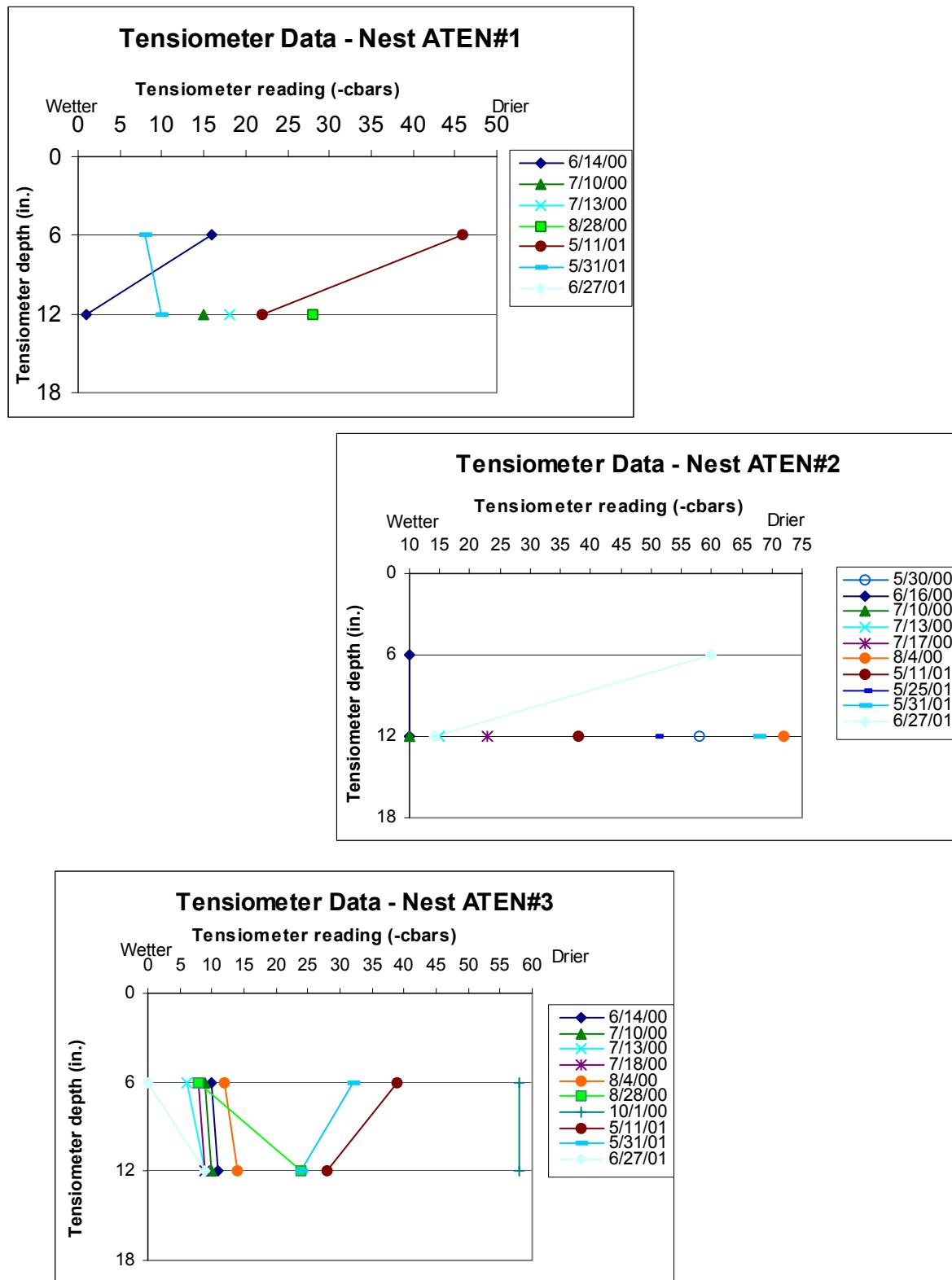
Soil Moisture Content Measurements



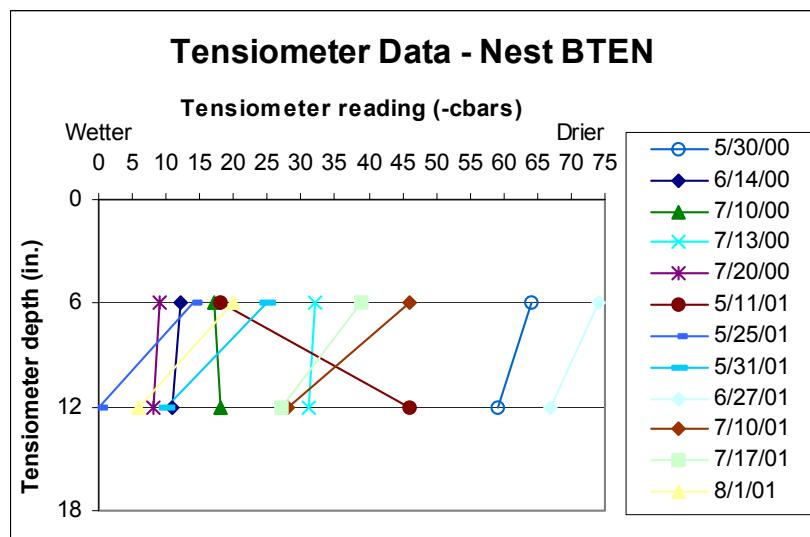
Soil Moisture Content Measurements



Soil Moisture Content Measurements



Soil Moisture Content Measurements



APPENDIX A – Water Resources

A.3 Laboratory Methods

Tables contain analytical methodologies utilized and probable quantitative limits for metals analysis. Probable quantitative limits were determined by the analysis of the Instrument Performance Check solutions diluted to approximately three-times the Instrument Detection Limit, IDL, (standard deviation of seven exposures of calibration blank). Dilutions greater and less than the three-times IDL concentration were prepared and analyzed. Probable quantitative limits were defined as the diluted concentration in which the relative percent difference between the analytical value and the given value is nearly or less than ten percent.

Table of Analytical Methodologies

Parameter	Method
Alkalinity	Standard Operating Procedure SOP GW-19
Anions (Cl ⁻ , N in NO ₃ ²⁻ , SO ₄ ³⁻)	EPA 300.0 analytical procedure
Metals (Al, As, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Na, Pb, Zn)	EPA 200.15 analytical procedure

Analyte	Probable Quantitative Limit (ppm)
Aluminum	0.01
Arsenic	0.005
Calcium	0.02
Cadmium	0.001
Chromium	0.005
Copper	0.003
Iron	0.005
Potassium	0.2
Magnesium	0.1
Manganese	0.0005
Sodium	0.5
Phosphorus	0.01
Lead	0.01
Zinc	0.001

APPENDIX A – Water Resources

A.4 Sample Collection and Analysis Information

Tables include information pertaining to sample collection and analysis. Samples may have more than one analytical date, which suggests the sample was reanalyzed due to quality control issues or requirement of a dilution.

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst
MW-1 050100	5/1/00	16:25	Groundwater	BB, MJ, CW, WW	5/2/00	BB	5/2/00	5/2/00	17:21	CW	8/2/00	16:53	CW
MW-2 050100	5/1/00	15:45	Groundwater	BB, MJ, CW, WW	5/2/00	BB	5/2/00	5/2/00	17:32	CW	8/2/00	16:18	CW
MW-3 050100	5/1/00	14:15	Groundwater	BB, MJ, CW, WW	5/2/00	BB	5/2/00	5/2/00	17:42	CW	8/2/00	16:26	CW
MW-4 050100	5/1/00	14:40	Groundwater	BB, MJ, CW, WW	5/2/00	BB	5/2/00	5/2/00	17:52	CW	8/2/00	16:35	CW
MW-5 050100	5/1/00	15:07	Groundwater	BB, MJ, CW, WW	5/2/00	BB	5/2/00	5/2/00	18:02	CW	8/2/00	17:18	CW
MW-5 050100 F. Dup	5/1/00	15:07	Groundwater	BB, MJ, CW, WW	5/2/00	BB	5/2/00	5/2/00	18:22	CW	8/2/00	16:42	CW
MW-5 050100 Split	5/1/00	15:07	Groundwater	BB, MJ, CW, WW	5/2/00	BB	no analysis	5/2/00	18:12	CW	8/2/00	16:49	CW
SW-1 060100	6/1/00	17:15	Surface Water	JM, AB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/2/00, 9/20/00	17:10, 14:49	CW
SW-2 060100	6/1/00	17:22	Surface Water	JM, AB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/2/00, 9/20/00	17:14, 14:52	CW
MW-2 060200	6/2/00	15:00	Groundwater	BB, MJ	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/2/00	16:22	CW
MW-5 060200	6/2/00	15:30	Groundwater	BB, MJ	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/2/00	17:22	CW
GKM-1GREEN 061900	6/19/00	13:00	Groundwater	CW, MJ, BB	6/20/00	CW	no analysis	6/20/00, 6/21/00	15:34,13:14	CW	8/4/00, 12/1/00	13:54, 11:06	CW
GKM-1RED 061900	6/19/00	12:35	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	15:24,13:04	CW	8/4/00, 12/1/00	14:54, 11:10	CW
GKM-3BLUE 061900	6/19/00	14:55	Groundwater	CW, MJ, BB	6/20/00	CW	no analysis	6/20/00, 6/21/00	16:35,14:15	CW	8/4/00	14:58	CW
GKM-3GREEN 061900	6/19/00	15:10	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	16:45,14:25	CW	8/4/00	15:09	CW
GKM-3RED 061900	6/19/00	14:40	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	16:05,13:44	CW	8/4/00	15:16	CW
GKM-3RED 061900 F. Dup	6/19/00	14:40	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	16:15,13:54	CW	8/4/00	15:20	CW
GKM-3RED 061900 Split	6/19/00	14:40	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	16:25,14:05	CW	8/4/00	15:13	CW
GKM-4BLUE 061900	6/19/00	10:25	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	17:16,14:55	CW	8/4/00	15:24	CW
GKM-4RED 061900	6/19/00	10:00	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	17:05,14:45	CW	8/4/00	15:55	CW
GKM-5BLUE 061900	6/19/00	16:00	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	17:36,15:16	CW	8/4/00	15:35	CW
GKM-5GREEN 061900	6/19/00	16:15	Groundwater	CW, MJ, BB	6/20/00	SD, JH	no analysis	6/20/00, 6/21/00	17:46,15:26	CW	8/4/00	15:05	CW
GKM-2BLUE 062000	6/20/00	10:10	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	19:36	CW	8/7/00	12:42	CW
GKM-6BLUE 062000	6/20/00	11:05	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	19:56	CW	8/4/00	16:21	CW
GKM-6GREEN 062000	6/20/00	11:30	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	19:46	CW	8/7/00	12:39	CW
MLS-4RED 062000	6/20/00	14:30	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	20:07	CW	8/4/00	16:25	CW
MLS-5BLUE 062000	6/20/00	15:30	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	20:47	CW	8/4/00	16:14	CW
MLS-5GREEN 062000	6/20/00	15:45	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	20:57	CW	8/4/00	15:59	CW
MLS-5RED 062000	6/20/00	15:05	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	20:17	CW	8/4/00	16:06	CW
MLS-5RED 062000 F. Dup	6/20/00	15:15	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	20:27	CW	8/4/00	16:10	CW
MLS-5RED 062000 Split	6/20/00	15:20	Groundwater	MJ, BB	6/21/00	SD, JH	no analysis	6/21/00	20:37	CW	8/4/00	16:03	CW
GKM-6BLUE 062600	6/26/00	16:25	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	14:50	CW	8/7/00	14:29	CW
GKM-6W 062600	6/26/00	16:37	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	15:01	CW	8/7/00	14:54	CW
GKM-7BLUE 062600	6/26/00	14:00	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	15:31	CW	8/7/00	14:07	CW
GKM-7BLUE 062600 F. Dup	6/26/00	14:05	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	15:51	CW	8/7/00	14:11	CW
GKM-7BLUE 062600 Split	6/26/00	14:10	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	15:41	CW	8/7/00	14:03	CW

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst
GKM-7W 062600	6/26/00	14:20	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	16:01	CW	8/7/00	14:18	CW
GKM-8BLUE 062600	6/26/00	11:25	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	16:22	CW	8/7/00	13:52	CW
GKM-8GREEN 062600	6/26/00	11:30	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	16:32	CW	8/7/00	13:56	CW
GKM-8RED 062600	6/26/00	11:20	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	16:12	CW	8/7/00	13:48	CW
GKM-8W 062600	6/26/00	12:00	Groundwater	MJ	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/7/00	14:00	CW
GKM-9BLUE 062600	6/26/00	9:30	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	16:52	CW	8/7/00	12:57	CW
GKM-9GREEN 062600	6/26/00	9:45	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	17:02	CW	8/7/00	12:50	CW
GKM-9RED 062600	6/26/00	9:15	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	16:42	CW	8/7/00	12:53	CW
GKM-9W 062600	6/26/00	9:55	Groundwater	MJ	6/27/00	SD, JH	no analysis	6/27/00	17:13	CW	8/7/00	13:01	CW
MLS-3RED 062700	6/27/00	12:55	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	12:10	CW	8/7/00, 9/20/00	15:05, 15:03	CW
MLS-3RED 062700 F. Dup	6/27/00	13:10	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	12:20	CW	8/7/00, 9/20/00	15:20, 15:07	CW
MLS-3RED 062700 Split	6/27/00	13:13	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	12:30	CW	8/7/00, 9/20/00	16:38, 15:37	CW
MLS-3W 062700	6/27/00	13:40	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	12:41	CW	8/7/00, 9/25/00	15:09, 11:48	CW
MLS-5BLUE 062700	6/27/00	11:10	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	10:49	CW	8/7/00	16:30	CW
MLS-5GREEN 062700	6/27/00	11:06	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	10:39	CW	8/7/00	16:34	CW
MLS-5RED 062700	6/27/00	10:59	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	10:29	CW	8/7/00	15:16	
MLS-5W 062700	6/27/00	10:40	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	9:58	CW	8/7/00	15:13	CW
MW-5 062700	6/27/00	10:10	Groundwater	MJ, BB	6/28/00	JH	no analysis	6/29/00	9:48	CW	8/7/00	16:24	CW
GKM-2W 062800	6/28/00	16:50	Groundwater	MJ	6/29/00	JH	no analysis	6/29/00	13:21	CW	8/4/00	11:18	CW
GKM-4W 062800	6/28/00	13:30	Groundwater	MJ	6/29/00	JH	no analysis	6/29/00	14:02	CW	8/4/00	11:22	CW
GKW-1 062800	6/28/00	11:10	Groundwater	MJ	6/29/00	JH	no analysis	6/29/00	13:01	CW	8/4/00	11:15	CW
GKW-2 062800	6/28/00	12:30	Groundwater	MJ	6/29/00	JH	no analysis	6/29/00	13:11	CW	8/4/00	11:11	CW
GKW-4 062800	6/28/00	14:40	Groundwater	MJ	6/29/00	JH	no analysis	6/29/00	13:31	CW	8/4/00	11:07	CW
GKW-4 062800 F. Dup	6/28/00	14:50	Groundwater	MJ	6/29/00	JH	no analysis	6/29/00	12:20	CW	8/4/00	11:29	CW
GKM-1W 062900	6/29/00	10:40	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	12:07	CW	8/4/00	12:29	CW
GKM-3W 062900	6/29/00	12:15	Groundwater	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/4/00	12:37	CW
GKM-5W 062900	6/29/00	12:35	Groundwater	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/4/00	12:44	CW
GKW-3 062900	6/29/00	11:40	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	12:17	CW	8/4/00	12:40, 12:31	CW
GKW-5 062900	6/29/00	9:46	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	12:27	CW	8/4/00	12:33	CW
GKW-7 062900	6/29/00	15:23	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	12:37	CW	8/4/00	11:33	CW
GKW-8 062900	6/29/00	13:42	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	12:47	CW	8/4/00	11:37	CW
GKW-8 062900 F. Dup	6/29/00	13:45	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	12:58	CW	8/4/00	12:04	CW
GKW-8 062900 Split	6/29/00	13:47	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	13:08	CW	8/4/00	12:22	CW
GKW-9 062900	6/29/00	14:35	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	13:18	CW	8/4/00	12:18	CW
MW-1 062900	6/29/00	16:00	Groundwater	MJ, BB	6/30/00	JH	no analysis	6/30/00	11:57	CW	8/4/00	12:26	CW
GKW-10 063000	6/30/00	11:38	Groundwater	MJ, BB	6/30/00	CW	no analysis	6/30/00	16:51	CW	8/4/00	13:36	CW

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst
GKW-11 063000	6/30/00	9:45	Groundwater	MJ, BB	6/30/00	CW	no analysis	6/30/00	17:01	CW	8/4/00	13:43	CW
MLS-4RED 063000	6/30/00	11:03	Groundwater	MJ, BB	6/30/00	CW	no analysis	6/30/00	16:31	CW	8/4/00	13:25	CW
MLS-4W 063000	6/30/00	10:48	Groundwater	MJ, BB	6/30/00	CW	no analysis	6/30/00	16:41	CW	8/4/00	13:32	CW
MW-2 063000	6/30/00	8:47	Groundwater	MJ, BB	6/30/00	CW	no analysis	6/30/00	15:50	CW	8/4/00	13:14	CW
MW-4 063000	6/30/00	10:30	Groundwater	MJ, BB	6/30/00	CW	no analysis	6/30/00	16:00	CW	8/4/00	13:40	CW
MW-4 063000 F. Dup	6/30/00	10:31	Groundwater	MJ, BB	6/30/00	CW	no analysis	6/30/00	16:10	CW	8/4/00	13:21	CW
MW-4 063000 Split	6/30/00	10:34	Groundwater	MJ, BB	6/30/00	CW	no analysis	6/30/00	16:20	CW	8/4/00	13:17	CW
SW-3 070700	7/7/00	13:15	Surface Water	AB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	9/26/00	14:43	CW
SW-4 070700	7/7/00	14:00	Surface Water	AB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	9/26/00, 10/26/00	14:46, 14:36	CW
SW-4 070700 F. Dup	7/7/00	14:00	Surface Water	AB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	9/26/00, 12/1/00	14:50, 11:14	CW
SW-5 070700	7/7/00	14:20	Surface Water	AB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	9/26/00, 10/31/00	14:54, 13:29	CW
ALYSD2-2 071700	7/17/00	10:45	Soil Water	MJ, BB	7/18/00	CW	no analysis	7/18/00	14:10	CW	8/10/00, 12/1/00	13:27, 11:17	CW
ALYSS2-2 071700	7/17/00	10:40	Soil Water	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/11/00	11:26	CW
GKM-1GREEN 071700	7/17/00	12:00	Groundwater	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/10/00	13:42	CW
GKM-1RED 071700	7/17/00	11:45	Groundwater	MJ, BB	7/18/00	CW	no analysis	7/18/00	14:31	CW	8/11/00	11:23	CW
GKM-1W 071700	7/17/00	11:35	Groundwater	MJ, BB	7/18/00	CW	no analysis	7/18/00	14:20	CW	8/11/00	12:19	CW
GKM-2BLUE 071700	7/17/00	16:54	Groundwater	MJ, BB	7/18/00	CW	no analysis	7/18/00	18:25	CW	8/11/00	12:26	CW
GKM-2W 071700	7/17/00	16:40	Groundwater	MJ, BB	7/18/00	SD	no analysis	7/18/00	17:54	CW	8/11/00	12:11	CW
GKM-2W 071700 Split	7/17/00	16:40	Groundwater	MJ, BB	7/18/00	SD	no analysis	7/18/00, 7/19/00	18:14, 13:02	CW	8/11/00	12:22	CW
GKM-2W FD 071700	7/17/00	16:40	Groundwater	MJ, BB	7/18/00	SD	no analysis	7/18/00	18:04	CW	8/10/00	14:47	CW
GKM-3BLUE 071700	7/17/00	15:10	Groundwater	MJ, BB	7/18/00	SD	no analysis	7/18/00	16:32	CW	8/10/00	13:38	CW
GKM-3GREEN 071700	7/17/00	15:17	Groundwater	MJ, BB	7/18/00	SD	no analysis	7/18/00	16:43	CW	8/10/00	13:23	CW
GKM-3RED 071700	7/17/00	15:00	Groundwater	MJ, BB	7/18/00	SD	no analysis	7/18/00	16:22	CW	8/10/00	13:53	CW
GKM-5BLUE 071700	7/17/00	13:55	Groundwater	MJ, BB	7/18/00	CW	no analysis	7/18/00	16:02	CW	8/10/00	14:36	CW
LYSD-2 071700	7/17/00	17:25	Soil Water	MJ, BB	7/18/00	SD	no analysis	7/18/00	20:16	CW	8/11/00	12:30	CW
LYSD2-1 071700	7/17/00	12:37	Soil Water	MJ, BB	7/18/00	SD	no analysis	7/18/00	15:31	CW	8/11/00, 9/21/00	12:07, 12:29	CW
LYSD-3 071700	7/17/00	15:30	Soil Water	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/10/00	13:49	CW
LYSS-1 071700	7/17/00	12:45	Soil Water	MJ, BB	7/18/00	CW	no analysis	7/18/00, 7/19/00	15:52, 12:42	CW	8/11/00, 9/21/00	12:14, 12:33, 12:36	CW
LYSS-2 071700	7/17/00	17:20	Soil Water	MJ, BB	no analysis	no analysis	no analysis	7/18/00	18:35	CW	8/10/00	14:55	CW
LYSS-3 071700	7/17/00	15:25	Soil Water	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/10/00, 9/21/00	13:45 and 12:48	CW
LYSS-5 071700	7/17/00	14:30	Soil Water	MJ, BB	7/18/00	SD	no analysis	7/18/00	16:12	CW	8/10/00, 9/21/00, 10/31/00	14:43, 12:10, 12:44	CW
LYSVD-1 071700	7/17/00	12:10	Soil Water	MJ, BB	7/18/00	SD	no analysis	7/18/00	14:51	CW	8/10/00	14:04, 11:29	CW
LYSVD2-2 071700	7/17/00	17:05	Soil Water	MJ, BB	7/18/00	SD	no analysis	7/18/00	19:56	CW	8/10/00	14:51	CW
LYSVD2-3 071700	7/17/00	15:38	Soil Water	MJ, BB	7/18/00	SD	no analysis	7/18/00	16:53	CW	8/10/00	14:29	CW
LYSVD-5 071700	7/17/00	14:25	Soil Water	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/10/00	14:40	CW
ALYSD2-3 071800	7/18/00	9:59	Soil Water	MJ, BB	7/20/00	AG	7/19/00	7/19/00	14:03	CW	8/10/00, 9/21/00	15:56, 13:49	CW

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst
ALYSS2-3 071800	7/18/00	9:50	Soil Water	MJ, BB	7/20/00	AG	no analysis	7/19/00	13:53	CW	8/10/00, 9/21/00	15:41, 13:46	CW
GKW-10 071800	7/18/00	15:45	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	16:45	CW	8/10/00	15:34	CW
GKW-11 071800	7/18/00	10:30	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	14:13	CW	8/11/00	10:53	CW
MLS-4RED 071800	7/18/00	14:55	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/19/00	16:35	CW	9/20/00	14:41	CW
MLS-4W 071800	7/18/00	14:45	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	16:15	CW	9/20/00	14:37	CW
MLS-5BLUE 071800	7/18/00	13:07	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	15:55	CW	8/10/00	14:58	CW
MLS-5GREEN 071800	7/18/00	13:20	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/19/00	16:05	CW	8/11/00	10:46	CW
MLS-5RED 071800	7/18/00	13:01	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/19/00	15:04	CW	8/11/00	10:57	CW
MLS-5W 071800	7/18/00	12:58	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	14:54	CW	8/10/00	15:45	CW
MW-1 071800	7/18/00	17:15	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	17:06	CW	8/10/00	15:30	CW
MW-2 071800	7/18/00	16:45	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	16:56	CW	8/10/00	15:27	CW
MW-4 071800	7/18/00	14:30	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	16:25	CW	8/10/00	15:23	CW
MW-5 071800	7/18/00	12:25	Groundwater	MJ, BB	7/20/00	AG	7/19/00	7/19/00	14:23	CW	8/11/00	11:04	CW
MW-5 071800 F. Dup	7/18/00	12:31	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/19/00	14:44	CW	8/11/00	11:08	CW
MW-5 071800 Split	7/18/00	12:33	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/19/00	14:33	CW	8/11/00	11:01	CW
GKM-3W 071900	7/19/00	16:23	Groundwater	MJ, BB	no analysis	no analysis	no analysis	7/20/00	15:14	CW	8/11/00	16:33	CW
GKM-5W 071900	7/19/00	16:10	Groundwater	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/11/00	17:34	CW
GKW-1 071900	7/19/00	11:00	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/20/00	13:32	CW	8/11/00	13:48	CW
GKW-2 071900	7/19/00	12:07	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/20/00	13:42	CW	8/11/00	13:51	CW
GKW-3 071900	7/19/00	15:00	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/20/00	14:53	CW	8/11/00	13:55	CW
GKW-4 071900	7/19/00	13:55	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/20/00	13:52	CW	8/11/00	13:59	CW
GKW-4 071900 Split	7/19/00	13:59	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/20/00	14:12	CW	8/11/00	14:03	CW
GKW-5 071900	7/19/00	16:10	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/20/00	15:04	CW	8/11/00	17:06	CW
GKW-8 071900	7/19/00	17:00	Groundwater	MJ, BB	7/20/00	AG	no analysis	7/20/00	15:24	CW	8/11/00	17:30	CW
INFLOW 071900	7/19/00	10:00	Sewage Effluent	MJ, BB	7/21/00	AG	7/20/00	7/20/00	16:25	CW	9/20/00	14:45	CW
OUTFLOW 071900	7/19/00	9:40	Effluent	MJ, BB	7/20/00	AG	7/19/00	7/20/00	16:15	CW	8/11/00	17:03	CW
BLYSD-2 072000	7/20/00	9:05	Soil Water	MJ, BB	7/21/00	JH	no analysis	7/21/00	11:53	CW	8/8/00, 9/21/00	15:14, 13:57	CW
BLYSS-2 072000	7/20/00	9:25	Soil Water	MJ, BB	no analysis	no analysis	7/21/00	no analysis	no analysis	no analysis	8/8/00, 9/21/00	14:26, 14:04	CW
GKM-4BLUE 072000	7/20/00	14:30	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	16:27	CW	8/11/00	16:06	CW
GKM-4GREEN 072000	7/20/00	14:45	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	17:39	CW	8/11/00	15:58	CW
GKM-4RED 072000	7/20/00	14:22	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	16:17	CW	8/11/00	15:47	CW
GKM-4W 072000	7/20/00	14:10	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	16:07	CW	8/11/00	14:10	CW
GKM-8BLUE 072000	7/20/00	12:52	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	13:45	CW	8/11/00	16:37	CW
GKM-8RED 072000	7/20/00	12:37	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	13:35	CW	8/11/00	15:36	CW
GKM-8W 072000	7/20/00	13:29	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	14:36	CW	8/11/00	15:29	CW
GKM-9BLUE 072000	7/20/00	11:32	Groundwater	MJ, BB	7/21/00	JH	no analysis	7/21/00	13:04	CW	8/11/00	14:17	CW

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst
GKM-9RED 072000	7/20/00	11:20	Groundwater	MJ, BB	7/21/00	JH	no analysis	7/21/00	12:54	CW	8/11/00	15:50	CW
GKM-9W 072000	7/20/00	11:11	Groundwater	MJ, BB	7/21/00	JH	no analysis	7/21/00	12:44	CW	8/11/00	15:43	CW
GKW-7 072000	7/20/00	17:05	Groundwater	MJ, BB	7/21/00	JH	no analysis	7/21/00	17:49	CW	8/11/00	16:44	CW
GKW-7 072000 Split	7/20/00	17:15	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	18:39	CW	8/8/00	14:33	CW
GKW-7 072000 F. Dup	7/20/00	17:05	Groundwater	MJ, BB	7/21/00	SD	no analysis	7/21/00	17:59	CW	8/8/00	14:22	CW
LYSD-2 072000	7/20/00	11:45	Soil Water	MJ, BB	no analysis	no analysis	no analysis	no analysis	NS	no analysis	8/11/00	14:21	CW
LYSD-4 072000	7/20/00	15:03	Soil Water	MJ, BB	7/21/00	SD	no analysis	7/21/00	17:18	CW	8/11/00, 9/21/00	16:29, 15:36	CW
LYSSD-4 072000	7/20/00	14:58	Soil Water	MJ, BB	7/21/00	SD	no analysis	7/21/00, 7/25/00	16:58, 16:43	CW	8/11/00, 9/21/00	16:48, 14:12, 15:54	CW
LYSVD-2-8 072000	7/20/00	13:06	Soil Water	MJ, BB	7/21/00	JH	no analysis	7/21/00	13:55	CW	8/11/00	15:33	CW
LYSVD-9 072000	7/20/00	11:57	Soil Water	MJ, BB	7/21/00	JH	no analysis	7/21/00	13:14	CW	8/11/00	14:14	CW
MLS-3RED 072000	7/20/00	9:55	Groundwater	MJ, BB	7/21/00	SD	7/21/00	7/21/00	12:34	CW	8/8/00, 9/21/00	14:18, 14:08	CW
MLS-3W 072000	7/20/00	10:12	Groundwater	MJ, BB	7/21/00	JH	no analysis	7/21/00	12:23	CW	9/20/00	13:17	CW
SPRINKLER 072000	7/20/00	9:40	Effluent	MJ, BB	no analysis	no analysis	7/21/00	7/21/00	12:13	CW	8/8/00	14:29	CW
GKM-6BLUE 072400	7/24/00	13:35	Groundwater	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	8/8/00	16:23	CW
GKM-6W 072400	7/24/00	13:20	Groundwater	MJ, BB	7/25/00	JH	no analysis	7/25/00	14:41	CW	9/20/00	13:10	CW
GKM-7BLUE 072400	7/24/00	10:30	Groundwater	MJ, BB	7/25/00	JH	no analysis	7/25/00	12:59	CW	8/8/00	15:25	CW
GKM-7W 072400	7/24/00	10:20	Groundwater	MJ, BB	7/25/00	JH	no analysis	7/25/00	12:49	CW	8/8/00	16:19	CW
GKW-9 072400	7/24/00	11:55	Groundwater	MJ, BB	7/25/00	JH	no analysis	7/25/00	14:00	CW	8/8/00 and 9/20/00	15:44 and 13:13	CW
GKW-9 072400 Split	7/24/00	11:52	Groundwater	MJ, BB	7/25/00	JH	no analysis	7/25/00	14:21	CW	8/8/00 and 12/1/00	16:34 and 12:38	CW
GKW-9 072400 F. Dup	7/24/00	11:51	Groundwater	MJ, BB	7/25/00	JH	no analysis	7/25/00	14:10	CW	8/8/00 and 12/1/00	15:21 and 11:25	CW
LYSD-7 072400	7/24/00	10:50	Soil Water	MJ, BB	7/25/00	JH	no analysis	7/25/00	13:20	CW	8/8/00, 9/21/00, and 10/26/00	16:30, 15:51, 15:38	CW
LYSS-7 072400	7/24/00	10:44	Soil Water	MJ, BB	no analysis	no analysis	no analysis	7/25/00	12:39	CW	8/8/00, 9/21/00 and 10/26/00	6:27, 15:47, 15:34	CW
LYSVD2-7 072400	7/24/00	10:59	Soil Water	MJ, BB	7/25/00	JH	no analysis	7/25/00	13:40	CW	8/8/2000, 9/21/00, 10/31/00	15:40, 15:58, 12:18	CW
LYSVD-6 072400	7/24/00	13:40	Soil Water	MJ, BB	no analysis	no analysis	no analysis	7/25/00	14:51	CW	8/8/00, 12/1/00	15:36, 11:32	CW
ALYSD-1 081400	8/14/00	11:15	Soil Water	MJ, BB	8/15/00	CW	8/15/00	8/15/00	14:26	CW	9/26/00, 12/1/00	13:50, 11:36	CW
ALYSD-1 082800	8/28/00	10:20	Soil Water	MJ, BB	8/29/00	CW	no analysis	8/29/00, 8/30/00	12:31, 10:12	CW	9/26/00, 12/1/00	12:30, 11:40	CW
GKM-1GREEN 082800	8/28/00	15:51	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	18:06	CW	9/26/00	14:32	CW
GKM-1RED 082800	8/28/00	15:43	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	16:04	CW	9/26/00	13:38	CW
GKM-1W 082800	8/28/00	15:38	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	15:54	CW	9/26/00	13:27	CW
GKW-10 082800	8/28/00	14:23	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	14:43	CW	9/26/00	14:35	CW
GKW-11 082800	8/28/00	10:01	Groundwater	MJ, BB	8/29/00	CW	8/29/00	8/29/00	12:20	CW	9/26/00	13:20	CW
GKW-5 082800	8/28/00	16:37	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	18:16	CW	9/26/00	14:39	CW
LYSD2-1 082800	8/28/00	15:15	Soil Water	MJ, BB	8/29/00	CW	no analysis	8/29/00	15:23	CW	9/26/00, 10/30/00	13:46, 18:29	CW
LYSVD-1 082800	8/28/00	15:01	Soil Water	MJ, BB	8/29/00	CW	no analysis	8/29/00	15:03	CW	9/26/00	13:24	CW

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst
MLS-3RED 082800	8/28/00	13:42	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	14:33	CW	9/26/00, 10/26/00	13:53, 13:05	CW
MLS-3W 082800	8/28/00	13:30	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00, 8/30/00	14:12, 11:13	CW	9/26/00, 12/1/00	13:35, 12:27	CW
MLS-4RED 082800	8/28/00	12:20	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	14:02	CW	9/25/00	15:59	CW
MLS-4W 082800	8/28/00	12:15	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	13:52	CW	9/26/00	12:15	CW
MLS-5BLUE 082800	8/28/00	11:24	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	13:52	CW	9/26/00	12:19	CW
MLS-5RED 082800	8/28/00	11:16	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	13:01	CW	9/26/00	12:33	CW
MLS-5W 082800	8/28/00	11:06	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	12:51	CW	9/26/00	12:41	CW
MW-4 082800	8/28/00	11:56	Groundwater	MJ, BB	8/29/00	CW	8/29/00	8/29/00	13:21	CW	9/26/00	12:26	CW
MW-4 082800 F. Dup	8/28/00	11:58	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	13:31	CW	9/26/00	12:11	CW
MW-4 082800 Split	8/28/00	12:00	Groundwater	MJ, BB	8/29/00	CW	no analysis	8/29/00	13:42	CW	9/26/00	12:22	CW
MW-5 082800	8/28/00	10:50	Groundwater	MJ, BB	8/29/00	CW	8/29/00	8/29/00	12:41	CW	9/26/00	12:44	CW
GKM-2BLUE 082900	8/29/00	16:40	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	17:31	CW	9/25/00	14:35	CW
GKM-2W 082900	8/29/00	16:39	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	17:01	CW	9/25/00	14:49	CW
GKM-6BLUE 082900	8/29/00	14:21	Groundwater	MJ	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	9/25/00	13:47	CW
GKM-6W 082900	8/29/00	14:10	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	15:17	CW	9/25/00	13:25	CW
GKM-7BLUE 082900	8/29/00	14:08	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	12:35	CW	9/25/00	14:42	CW
GKM-7RED 082900	8/29/00	14:18	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	12:45	CW	9/25/00	13:32	CW
GKM-7W 082900	8/29/00	14:03	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	12:25	CW	9/25/00	15:44	CW
GKM-8BLUE 082900	8/29/00	10:55	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	13:46	CW	9/25/00	14:46	CW
GKM-8RED 082900	8/29/00	10:50	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	13:36	CW	9/25/00	14:31	CW
GKM-8W 082900	8/29/00	11:10	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	13:56	CW	9/25/00	14:57	CW
GKM-9BLUE 082900	8/29/00	9:48	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	11:54	CW	9/25/00	15:26	CW
GKM-9RED 082900	8/29/00	9:42	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	11:44	CW	9/25/00	15:29	CW
GKM-9W 082900	8/29/00	9:35	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	11:34	CW	9/25/00	15:41	CW
GKW-8 082900	8/29/00	14:48	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	15:28	CW	9/25/00	13:21	CW
GKW-9 082900	8/29/00	12:48	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	12:55	CW	9/25/00	13:29	CW
GKW-9 082900 F. Dup	8/29/00	12:48	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	13:05	CW	9/25/00	13:43	CW
GKW-9 082900 Split	8/29/00	13:00	Groundwater	MJ	8/30/00	EN	no analysis	8/30/00	13:15	CW	9/25/00	13:18	CW
LYSD-2 082900	8/29/00	15:20	Soil Water	MJ	8/30/00	EN	no analysis	8/30/00, 8/31/00	15:57, 12:00	CW	9/25/00	14:53	CW
LYSD-2 082900	8/29/00	8:50	Soil Water	MJ	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	9/25/00	14:38	CW
LYSD-7 082900	8/29/00	11:44	Soil Water	MJ	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	9/25/00, 10/26/00	15:48, 14:29	CW
LYSD-8 082900	8/29/00	10:15	Soil Water	MJ	8/30/00	EN	no analysis	8/30/00	12:04	CW	9/25/00	15:01	CW
LYSVD2-2 082900	8/29/00	16:25	Soil Water	MJ	8/30/00	EN	no analysis	8/30/00, 8/31/00	16:50, 12:20	CW	9/25/00	13:40	CW
LYSVD2-7 082900	8/29/00	11:50	Soil Water	MJ	8/30/00	EN	no analysis	8/30/00, 8/31/00	14:16, 11:50	CW	9/25/00, 10/31/00	15:52, 12:21	CW
LYSVD2-8 082900	8/29/00	10:35	Soil Water	MJ	8/30/00	EN	no analysis	8/30/00	12:14	CW	9/25/00	14:27	CW
LYSVD9 082900	8/29/00	9:00	Soil Water	MJ	8/30/00	EN	no analysis	8/30/00	11:24	CW	9/25/00	15:37	CW

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst	
GKM-3BLUE 083000	8/30/00	10:32	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	14:32	CW	10/18/00	15:00	CW	
GKM-3GREEN 083000	8/30/00	10:38	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	14:42	CW	10/18/00	14:53	CW	
GKM-3RED 083000	8/30/00	10:27	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	14:22	CW	10/18/00	14:45	CW	
GKM-3W 083000	8/30/00	10:25	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	14:12	CW	10/18/00	13:50	CW	
GKM-4BLUE 083000	8/30/00	12:00	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	17:35	CW	10/18/00	13:04	CW	
GKM-4RED 083000	8/30/00	11:52	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	17:25	CW	10/18/00	12:56	CW	
GKM-4W 083000	8/30/00	11:47	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	17:14	CW	10/18/00	13:39	CW	
GKM-5BLUE 083000	8/30/00	9:24	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	13:42	CW	10/18/00	12:37	CW	
GKM-5W 083000	8/30/00	9:10	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	13:11	CW	10/18/00	15:07	CW	
GKW-1 083000	8/30/00	13:30	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	16:24	CW	10/18/00	13:00	CW	
GKW-2 083000	8/30/00	12:46	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	15:53	CW	10/18/00	15:19	CW	
GKW-2 083000 F. Dup	8/30/00	12:46	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	16:03	CW	10/18/00	13:43	CW	
GKW-2 083000 Split	8/30/00	12:54	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	16:14	CW	10/18/00	12:45	CW	
GKW-4 083000	8/30/00	14:45	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	16:34	CW	10/18/00	12:30	CW	
GKW-7 083000	8/30/00	15:30	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	16:44	CW	10/18/00	12:41	CW	
LYSD2-5 083000	8/30/00	9:00	Soil Water	MJ, BB	9/1/00	CW	no analysis	8/31/00	13:32	CW	10/18/00, 10/26/00	12:33, 13:09	CW	
LYSD-3 083000	8/30/00	9:55	Soil Water	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	10/18/00	13:47	CW
LYSD-4 083000	8/30/00	11:20	Soil Water	MJ, BB	9/1/00	CW	no analysis	8/31/00, 9/1/00	15:03, 10:25	CW	10/18/00, 10/31/00	15:04, 11:56	CW	
LYSS2-4 083000	8/30/00	11:28	Soil Water	MJ, BB	NS	NS	no analysis	no analysis	no analysis	no analysis	no analysis	10/18/00, 10/30/00	12:48, 17:53	CW
LYSVD2-3 083000	8/30/00	10:00	Soil Water	MJ, BB	9/1/00	CW	no analysis	8/31/00	13:52	CW	10/18/00	13:54	CW	
LYSVD-4 083000	8/30/00	11:35	Soil Water	MJ, BB	9/1/00	CW	no analysis	8/31/00	16:54	CW	10/18/00	13:28	CW	
MW-1 083000	8/30/00	16:30	Groundwater	MJ, BB	9/1/00	CW	no analysis	8/31/00	18:05	CW	10/18/00	13:58	CW	
MW-2 083000	8/30/00	15:55	Groundwater	MJ, BB	9/1/00	CW	8/31/00	8/31/00	17:55	CW	10/18/00	14:02	CW	
GKM-6BLUE 092900	9/29/00	16:20	Groundwater	MJ, BB	10/12/00	JH	no analysis	10/4/00	20:13	CW	10/20/00	12:07	CW	
GKM-6GREEN 092900	9/29/00	16:31	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	20:23	CW	10/20/00	12:11	CW	
GKM-6W 092900	9/29/00	16:15	Groundwater	MJ, BB	10/12/00	JH	no analysis	10/4/00	20:03	CW	10/20/00	12:03	CW	
GKM-7BLUE 092900	9/29/00	14:35	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	18:52	CW	10/20/00	12:22	CW	
GKM-7RED 092900	9/29/00	14:30	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	18:42	CW	10/20/00	12:18	CW	
GKM-7W 092900	9/29/00	14:25	Groundwater	MJ, BB	10/12/00	JH	no analysis	10/4/00	18:32	CW	10/20/00	12:14	CW	
GKM-8BLUE 092900	9/29/00	13:17	Groundwater	MJ, BB	10/12/00	JH	no analysis	10/4/00	18:01	CW	10/20/00	14:18	CW	
GKM-8GREEN 092900	9/29/00	13:30	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	18:21	CW	10/20/00	14:22	CW	
GKM-8RED 092900	9/29/00	13:10	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	17:51	CW	10/20/00	14:25	CW	
GKM-8W 092900	9/29/00	13:20	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	18:11	CW	10/20/00	14:14	CW	
GKM-9BLUE 092900	9/29/00	12:06	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	17:21	CW	10/20/00	12:54	CW	
GKM-9GREEN 092900	9/29/00	12:13	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	17:31	CW	10/20/00	13:05	CW	
GKM-9RED 092900	9/29/00	11:57	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	16:50	CW	10/20/00	12:51	CW	

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst
GKM-9W 092900	9/29/00	11:53	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	16:40	CW	10/20/00	13:13	CW
GKW-8 092900	9/29/00	17:00	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	20:34	CW	10/20/00	13:20	CW
GKW-8 092900 F. Dup	9/29/00	17:01	Groundwater	MJ, BB	10/12/00	JH	no analysis	10/4/00	20:44	CW	10/20/00	13:24	CW
GKW-8 092900 Split	9/29/00	17:03	Groundwater	MJ, BB	10/11/00	JH	no analysis	10/4/00	20:54	CW	10/20/00	14:11	CW
LYSD2-9 092900	9/29/00	11:31	Soil Water	MJ, BB	no analysis	no analysis	no analysis	10/4/00, 10/12/00	16:20 , 14:52	CW	10/20/00	13:09	CW
LYSD-7 092900	9/29/00	15:05	Soil Water	MJ, BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	10/20/00, 10/26/00	12:25, 15:08	CW
LYSD-8 092900	9/29/00	12:57	Soil Water	MJ, BB	10/12/00	JH	no analysis	10/4/00	17:41	CW	10/20/00	14:37	CW
LYSD2-7 092900	9/29/00	14:45	Soil Water	MJ, BB	10/12/00	JH	no analysis	10/4/00	19:02	CW	10/20/00, 10/31/00	12:58, 12:25	CW
LYSD2-8 092900	9/29/00	12:48	Soil Water	MJ, BB	10/11/00	JH	no analysis	10/4/00, 10/12/00	17:10, 15:02	CW	10/20/00	14:33	CW
LYSD-9 092900	9/29/00	11:35	Soil Water	MJ, BB	10/11/00	JH	no analysis	10/4/00	16:30	CW	10/20/00	13:17	CW
GKM-1GREENB 093000	9/30/00	11:58	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	21:38	CW	10/20/00, 10/26/00	16:35, 14:03	CW
GKM-1GREENC 093000	9/30/00	12:02	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	21:48	CW	10/20/00	16:38	CW
GKM-1REDA 093000	9/30/00	11:35	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	20:57	CW	10/20/00	16:27	CW
GKM-1REDB 093000	9/30/00	11:40	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	21:07	CW	10/20/00	16:20	CW
GKM-1REDC 093000	9/30/00	11:45	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	21:17	CW	10/20/00	16:31	CW
GKM-1WA 093000	9/30/00	11:25	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	18:45	CW	10/20/00	16:12	CW
GKM-1WB 093000	9/30/00	11:28	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	20:37	CW	10/20/00	16:16	CW
GKM-1WC 093000	9/30/00	11:31	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	20:47	CW	10/20/00	16:24	CW
GKM-2BLUE 093000	9/30/00	10:19	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	18:05	CW	10/20/00	15:19	CW
GKM-2W 093000	9/30/00	10:07	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	17:55	CW	10/20/00	15:23	CW
GKM-3BLUE 093000	9/30/00	14:15	Groundwater	BB	10/13/00	TMC	no analysis	10/3/00	15:25	CW	10/26/00	11:46	CW
GKM-3GREEN 093000	9/30/00	14:25	Groundwater	BB	10/12/00	JH	no analysis	10/3/00	15:35	CW	10/26/00	12:15	CW
GKM-3RED 093000	9/30/00	14:08	Groundwater	BB	10/13/00	TMC	no analysis	10/3/00	15:15	CW	10/26/00	12:43	CW
GKM-3W 093000	9/30/00	14:02	Groundwater	BB	10/13/00	AY	no analysis	10/3/00	15:05	CW	10/26/00	11:50	CW
GKM-5BLUE 093000	9/30/00	13:17	Groundwater	BB	10/13/00	TMC	no analysis	10/3/00	14:44	CW	10/26/00	11:57	CW
GKM-5W 093000	9/30/00	13:10	Groundwater	BB	10/12/00	JH	no analysis	10/3/00	14:34	CW	10/26/00	12:01	CW
GKW-1 093000	9/30/00	16:25	Groundwater	BB	10/12/00	JH	no analysis	10/3/00	16:16	CW	10/20/00	15:34	CW
GKW-1 093000 F. Dup	9/30/00	16:26	Groundwater	BB	10/12/00	JH	no analysis	10/3/00	16:26	CW	10/20/00	15:38	CW
GKW-1 093000 Split	9/30/00	16:30	Groundwater	BB	10/13/00	TMC	no analysis	10/3/00	16:36	CW	10/20/00	15:41	CW
GKW-4 093000	9/30/00	17:05	Groundwater	BB	10/13/00	AY	no analysis	10/3/00	16:46	CW	10/20/00	15:12	CW
GKW-7 093000	9/30/00	9:42	Groundwater	BB	10/12/00	JH	no analysis	10/2/00	17:45	CW	10/20/00	14:40	CW
GKW-9 093000	9/30/00	9:10	Groundwater	BB	10/13/00	TMC	no analysis	10/2/00	17:34	CW	10/20/00	14:44	CW
LYSD-2 093000	9/30/00	10:40	Soil Water	BB	10/12/00	JH	no analysis	10/2/00, 10/3/00	18:25, 13:33	CW	10/20/00	15:30	CW
LYSD2-1 093000	9/30/00	12:22	Soil Water	BB	10/12/00	JH	no analysis	10/3/00	14:24	CW	10/26/00, 10/30/00	12:12, 18:33	CW
LYSD2-5 093000	9/30/00	13:29	Soil Water	BB	10/12/00	JH	no analysis	10/3/00	14:54		10/26/00, 10/30/00	11:42, 18:37	CW
LYSD-3 093000	9/30/00	14:35	Soil Water	BB	no analysis	no analysis	no analysis	no analysis	NS	no analysis	10/26/00	12:47	CW

Groundwater and Soil Water Sample Information

Sample Name	Collection Date	Collection Time	Sample Type	Sample Collector(s)	Alkalinity Analysis Date	Alkalinity Analyst(s)	Coliform Analysis Date	IC Analysis Date	IC Analysis Time	IC Analyst	ICP Analysis Date	ICP Analysis Time	ICP Analyst
LYSS-1 093000	9/30/00	12:30	Soil Water	BB	no analysis	no analysis	no analysis	no analysis	NS	no analysis	10/20/00, 10/30/00, and 10/31/00	16:43, 17:57, 11:07	CW
LYSVD-1 093000	9/30/00	12:08	Soil Water	BB	10/12/00	JH	no analysis	10/2/00	21:58	CW	10/26/00	12:08	CW
LYSVD-2 093000	9/30/00	10:46	Soil Water	BB	10/12/00	JH	no analysis	10/2/00	18:35	CW	10/20/00	15:26	CW
LYSVD-3 093000	9/30/00	14:40	Soil Water	BB	10/12/00	JH	no analysis	10/3/00	15:45	CW	10/26/00	11:53	CW
ALYSS-1 100100	10/1/00	15:27	Soil Water	BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	10/20/00, 12/1/00	11:56, 12:19	CW
GKM-4BLUE 100100	10/1/00	8:15	Groundwater	BB	10/13/00	AY	no analysis	10/2/00	13:31	CW	10/19/00	14:26	CW
GKM-4GREEN 100100	10/1/00	8:30	Groundwater	BB	10/13/00	AY	no analysis	10/2/00	13:41	CW	10/19/00	14:11	CW
GKM-4RED 100100	10/1/00	8:10	Groundwater	BB	10/13/00	AY	no analysis	10/2/00	13:21	CW	10/19/00	14:08	CW
GKM-4W 100100	10/1/00	8:00	Groundwater	BB	10/13/00	AY	no analysis	10/2/00	13:10	CW	10/19/00	15:01	CW
GKW-10 100100	10/1/00	10:52	Groundwater	BB	10/13/00	AY	10/2/00	10/2/00	14:42	CW	10/19/00	14:22	CW
GKW-11 100100	10/1/00	15:03	Groundwater	BB	10/13/00	TMC	10/2/00	10/2/00	17:04	CW	10/19/00	15:27	CW
LYSD-4 100100	10/1/00	8:50	Soil Water	BB	10/13/00	AY	no analysis	10/2/00	14:01	CW	10/19/00, 10/31/00	14:00, 11:59	CW
LYSS2-4 100100	10/1/00	8:50	Soil Water	BB	no analysis	no analysis	no analysis	no analysis	no analysis	no analysis	10/19/00, 10/30/00	15:05, 18:10	CW
LYSVD-4 100100	10/1/00	8:40	Soil Water	BB	10/13/00	AY	no analysis	10/2/00	13:51	CW	10/19/00	13:56	CW
MLS-3RED 100100	10/1/00	10:22	Groundwater	BB	10/13/00	AY	10/2/00	10/2/00	14:21	CW	10/19/00, 10/26/00	14:19, 1:13	CW
MLS-3W 100100	10/1/00	10:20	Groundwater	BB	10/13/00	AY	no analysis	10/2/00, 10/3/00	14:11, 13:43	CW	10/18/00, 12/1/00	15:15, 12:23	CW
MLS-4RED 100100	10/1/00	11:55	Groundwater	BB	10/13/00	AY	no analysis	10/2/00, 10/3/00	15:02, 11:32	CW	10/19/00	13:52	CW
MLS-4W 100100	10/1/00	11:50	Groundwater	BB	10/13/00	AY	10/2/00	10/2/00, 10/3/00	14:52, 11:22	CW	10/19/00	15:24	CW
MLS-5RED 100100	10/1/00	12:44	Groundwater	BB	10/13/00	AY	no analysis	10/2/00	16:03	CW	10/20/00	11:52	CW
MLS-5W 100100	10/1/00	12:40	Groundwater	BB	10/13/00	AY	10/2/00	10/2/00	15:53	CW	10/19/00	15:09	CW
MW-1 100100	10/1/00	16:15	Groundwater	BB	10/13/00	AY	10/2/00	10/2/00	17:14	CW	10/19/00	15:31	CW
MW-2 100100	10/1/00	15:55	Groundwater	BB	10/13/00	AY	10/2/00	10/2/00	17:24	CW	10/19/00	15:16	CW
MW-4 100100	10/1/00	12:07	Groundwater	BB	10/13/00	AY	10/2/00	10/2/00	15:22	CW	10/19/00	15:35	CW
MW-4 100100 F. Dup	10/1/00	12:07	Groundwater	BB	10/13/00	AY	no analysis	10/2/00	15:12	CW	10/19/00	15:20	CW
MW-4 100100 Split	10/1/00	12:10	Groundwater	BB	10/13/00	AY	no analysis	10/2/00	15:33	CW	10/19/00	15:13	CW
MW-5 100100	10/1/00	13:16	Groundwater	BB	10/13/00	AY	10/2/00	10/2/00	16:54	CW	10/19/00	14:15	CW

APPENDIX A – Water Resources

A.5 Alkalinity and Anion QC Data

A.5.1 Standards

Calibration standards are periodically analyzed as unknowns in order to verify initial instrument calibration and to assess instrument performance over the duration of analysis.

IC Check Standards – Std 1

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD1	5/2/00	0.5	0.1	2.7
STD1	5/2/00	0.5	0.1	2.7
STD1	6/20/00	-	0.1	-
STD1	6/20/00	-	0.1	-
STD1	6/21/00	0.5	-	2.6
STD1	6/21/00	0.5	-	2.6
<i>N</i>		4	4	4
<i>Given Value</i>		0.5	0.1	2.5
<i>Average</i>		0.5	0.1	2.7
<i>Standard Deviation</i>		0.0	0.0	0.1

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD1	8/29/00	1.1	0.05	6.3
STD1	8/29/00	1.1	0.05	6.4
STD1	8/29/00	1.1	0.05	6.4
STD1	8/30/00	1.1	0.05	6.2
STD1	8/30/00	1.1	0.04	6.2
STD1	8/30/00	1.1	0.04	6.2
STD1	11/8/00	1.1	0.05	6.3
STD1	11/8/00	1.1	0.05	6.3
<i>N</i>		8	8	8
<i>Given Value</i>		1	0.05	6
<i>Average</i>		1.1	0.0	6.3
<i>Standard Deviation</i>		0.0	0.0	0.1

IC Check Standards – Std 1

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD1	6/21/00	1.1	0.1	6.3
STD1	6/21/00	1.1	0.1	6.2
STD1	6/27/00	1.1	0.1	6.3
STD1	6/27/00	1.1	0.1	6.3
STD1	6/29/00	1.1	0.1	6.3
STD1	6/29/00	1.0	0.1	6.3
STD1	6/30/00	1.0	0.1	6.3
STD1	6/30/00	1.0	0.1	6.3
STD1	7/6/00	1.1	0.1	6.3
STD1	7/6/00	1.1	0.1	6.3
STD1	7/11/00	1.1	0.1	6.3
STD1	7/11/00	1.1	0.1	6.2
STD1	7/11/00	1.1	0.1	6.2
STD1	7/12/00	1.1	0.1	6.2
STD1	7/12/00	1.1	0.1	6.3
STD1	7/18/00	1.1	0.1	6.3
STD1	7/18/00	1.0	0.1	6.1
STD1	7/18/00	1.0	0.1	6.2
STD1	7/19/00	1.1	0.1	6.4
STD1	7/19/00	1.0	0.1	6.3
STD1	7/19/00	1.0	0.1	6.4
STD1	7/20/00	1.1	0.1	6.4
STD1	7/20/00	1.1	0.1	6.4
STD1	7/20/00	1.1	0.1	6.4
STD1	7/21/00	1.1	0.1	6.3
STD1	7/21/00	1.1	0.1	6.3
STD1	7/21/00	1.1	0.1	6.5
STD1	7/25/00	1.0	0.1	6.2
STD1	7/25/00	1.1	0.1	6.7
STD1	7/25/00	1.0	0.1	6.3
STD1	8/15/00	1.1	0.1	6.3
STD1	8/15/00	1.1	0.1	6.5
STD1	8/31/00	1.1	0.1	6.3
STD1	8/31/00	1.1	0.1	6.3
STD1	8/31/00	1.1	0.1	6.3
STD1	9/1/00	1.1	0.1	6.3
STD1	9/1/00	1.1	0.1	6.3
STD1	10/2/00	1.1	0.1	6.3
STD1	10/2/00	1.1	0.1	6.2
STD1	10/2/00	1.1	0.1	6.2
STD1	10/2/00	1.1	0.1	6.2
STD1	10/3/00	1.1	0.1	6.2
STD1	10/3/00	1.1	0.1	6.1
STD1	10/3/00	1.1	0.1	6.2
STD1	10/4/00	1.1	0.1	6.3
STD1	10/4/00	1.1	0.1	6.2
STD1	10/4/00	1.1	0.1	6.2
STD1	10/12/00	-	-	6.2
STD1	10/12/00	-	-	6
<i>N</i>		47	47	49
<i>Given Value</i>		1	0.1	6
<i>Average</i>		1.1	0.1	6.3
<i>Standard Deviation</i>		0.0	0.0	0.1

IC Check Standards – Std 2

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD2	5/2/00	1	0.2	4.9
STD2	5/2/00	1	0.2	4.9
STD2	6/20/00	-	0.2	-
STD2	6/21/00	1	-	4.8
STD2	6/21/00	1	-	4.8
<i>N</i>		4	3	4
<i>Given Value</i>		1	0.2	5
<i>Average</i>		1.0	0.2	4.9
<i>Standard Deviation</i>		0.0	0.0	0.1

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD2	8/29/00	1.9	0.1	11.7
STD2	8/29/00	1.9	0.1	11.8
STD2	8/29/00	1.9	0.1	11.9
STD2	8/30/00	1.9	0.1	11.7
STD2	8/30/00	1.9	0.1	11.7
STD2	8/30/00	2	0.09	11.8
STD2	11/8/00	1.9	0.1	11.5
STD2	11/8/00	1.9	0.1	11.7
<i>N</i>		8	8	8
<i>Given Value</i>		2	0.1	12
<i>Average</i>		1.9	0.1	11.7
<i>Standard Deviation</i>		0.0	0.0	0.1

IC Check Standards – Std 2

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD2	6/21/00	1.9	0.2	11.6
STD2	6/21/00	1.9	0.2	11.5
STD2	6/27/00	1.9	0.2	11.6
STD2	6/27/00	2.1	0.2	11.7
STD2	6/29/00	1.9	0.2	11.8
STD2	6/29/00	1.9	0.2	11.9
STD2	6/30/00	1.9	0.2	11.6
STD2	6/30/00	1.9	0.2	11.7
STD2	7/6/00	1.9	0.2	11.8
STD2	7/6/00	1.9	0.2	11.8
STD2	7/11/00	1.9	0.2	11.6
STD2	7/11/00	2.0	0.2	11.5
STD2	7/11/00	1.9	0.2	11.5
STD2	7/12/00	1.9	0.2	11.6
STD2	7/12/00	1.9	0.2	11.7
STD2	7/18/00	1.9	0.2	11.8
STD2	7/18/00	1.9	0.2	11.6
STD2	7/18/00	1.8	0.2	11.7
STD2	7/19/00	1.9	0.2	11.6
STD2	7/19/00	1.9	0.2	11.6
STD2	7/19/00	1.9	0.2	11.7
STD2	7/20/00	1.9	0.2	11.7
STD2	7/20/00	1.9	0.2	11.7
STD2	7/20/00	2.0	0.2	12.0
STD2	7/21/00	1.9	0.2	11.6
STD2	7/21/00	1.9	0.2	11.7
STD2	7/21/00	1.9	0.2	11.7
STD2	7/25/00	1.9	0.2	11.6
STD2	7/25/00	1.9	0.2	11.7
STD2	7/25/00	1.9	0.2	11.7
STD2	8/15/00	1.9	0.2	11.8
STD2	8/15/00	2.0	0.2	12.1
STD2	8/31/00	1.9	0.2	11.6
STD2	8/31/00	1.9	0.2	11.8
STD2	8/31/00	1.9	0.2	11.8
STD2	9/1/00	1.9	0.2	11.6
STD2	9/1/00	1.9	0.2	11.6
STD2	10/2/00	2.0	0.2	11.8
STD2	10/2/00	2.0	0.2	11.8
STD2	10/2/00	2.0	0.2	11.7
STD2	10/2/00	2.0	0.2	11.9
STD2	10/3/00	2.0	0.2	11.7
STD2	10/3/00	2.0	0.2	11.6
STD2	10/3/00	1.9	0.2	11.6
STD2	10/4/00	1.9	0.2	11.6
STD2	10/4/00	1.9	0.2	11.6
STD2	10/4/00	1.9	0.2	11.6
STD2	10/12/00	-	-	11.7
STD2	10/12/00	-	-	11.5
<i>N</i>		47	47	49
<i>Given Value</i>		2	0.2	12
<i>Average</i>		1.9	0.2	11.7
<i>Standard Deviation</i>		0.1	0.0	0.1

IC Check Standards – Std 3

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD3	5/2/00	5.1	1.0	25.1
STD3	5/2/00	5.0	1.0	25.2
STD3	6/20/00	-	1.0	-
STD3	6/21/00	5.0	-	24.9
STD3	6/21/00	5.0	-	25.2
<i>N</i>		4	3	4
<i>Given Value</i>		5	1	25
<i>Average</i>		5	1	25.1
<i>Standard Deviation</i>		0.0	0.0	0.1

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD3	8/29/00	10.0	0.50	60.1
STD3	8/29/00	10.1	0.51	60.7
STD3	8/29/00	10.2	0.51	61.1
STD3	8/30/00	10.0	0.48	60.3
STD3	8/30/00	10.1	0.48	60.6
STD3	8/30/00	10.4	0.49	61.1
STD3	11/8/00	10.0	0.50	60.2
STD3	11/8/00	10.1	0.50	60.7
<i>N</i>		8	8	8
<i>Given Value</i>		10	0.5	60
<i>Average</i>		10	0.5	61
<i>Standard Deviation</i>		0.1	0.0	0.4

IC Check Standards – Std 3

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD3	6/21/00	10.0	1.0	59.8
STD3	6/21/00	10.1	1.0	60.3
STD3	6/27/00	10.0	1.0	60.1
STD3	6/27/00	10.1	1.0	60.7
STD3	6/29/00	10.1	1.0	60.4
STD3	6/29/00	10.1	1.0	60.9
STD3	6/30/00	9.9	1.0	60.3
STD3	6/30/00	10.0	1.0	60.2
STD3	7/6/00	9.9	1.0	60.1
STD3	7/6/00	9.9	1.1	60.1
STD3	7/11/00	10.1	0.9	59.9
STD3	7/11/00	10.2	1.0	60.3
STD3	7/11/00	10.0	1.0	60.0
STD3	7/12/00	10.0	1.0	60.3
STD3	7/12/00	10.1	1.0	60.9
STD3	7/18/00	10.2	1.0	60.4
STD3	7/18/00	10.2	1.1	60.5
STD3	7/18/00	10.1	1.0	60.6
STD3	7/19/00	10.1	1.0	60.1
STD3	7/19/00	10.1	1.0	60.2
STD3	7/19/00	10.1	1.0	60.4
STD3	7/20/00	10.1	1.0	60.1
STD3	7/20/00	10.1	1.0	60.3
STD3	7/20/00	10.1	1.0	60.4
STD3	7/21/00	10.0	1.0	60.4
STD3	7/21/00	10.1	1.0	60.4
STD3	7/21/00	10.1	1.1	60.4
STD3	7/25/00	10.0	1.0	60.2
STD3	7/25/00	10.1	1.0	60.2
STD3	7/25/00	10.1	1.0	60.0
STD3	8/15/00	10.1	1.0	60.5
STD3	8/15/00	10.2	1.0	61.3
STD3	8/31/00	10.1	1.0	60.3
STD3	8/31/00	10.1	1.0	60.5
STD3	8/31/00	10.1	1.0	60.5
STD3	9/1/00	10.0	1.0	60.1
STD3	9/1/00	10.1	1.0	60.2
STD3	10/2/00	10.2	1.0	60.5
STD3	10/2/00	10.2	1.0	60.8
STD3	10/2/00	10.2	1.0	60.9
STD3	10/2/00	10.2	1.0	60.8
STD3	10/3/00	10.1	1.0	60.0
STD3	10/3/00	10.3	1.0	60.1
STD3	10/3/00	10.1	1.0	60.2
STD3	10/4/00	10.0	1.0	60.0
STD3	10/4/00	10.1	1.0	60.2
STD3	10/4/00	10.1	1.0	60.1
STD3	10/12/00	-	-	59.9
STD3	10/12/00	-	-	59.9
<i>N</i>		47	47	49
<i>Given Value</i>		10	1	60
<i>Average</i>		10	1	60
<i>Standard Deviation</i>		0.1	0.0	0.3

IC Check Standards – Std 4

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD4	5/2/00	10.0	2.0	49.7
STD4	5/3/00	10.0	2.0	49.6
STD4	6/20/00	-	2.0	-
STD4	6/21/00	10.0	-	49.7
STD4	6/21/00	10.2	-	49.7
<i>N</i>		4	3	4
<i>Given Value</i>		10	2	50
<i>Average</i>		10	2.0	50
<i>Standard Deviation</i>		0.1	0.0	0.1

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD4	8/29/00	20.1	1.0	120.4
STD4	8/29/00	20.2	1.0	121.6
STD4	8/29/00	20.7	1.0	121.7
STD4	8/30/00	20.0	1.0	120.3
STD4	8/30/00	20.4	1.0	120.9
STD4	8/30/00	20.4	1.0	121.4
STD4	11/8/00	20.1	1.0	120.9
STD4	11/8/00	20.2	1.0	121.1
<i>N</i>		8	8	8
<i>Given Value</i>		20	1	120
<i>Average</i>		20	1	121
<i>Standard Deviation</i>		0.2	0.0	0.5

IC Check Standards – Std 4

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
STD4	6/21/00	20.2	2.0	120.7
STD4	6/21/00	20.0	2.1	120.1
STD4	6/27/00	19.5	2.1	120.0
STD4	6/27/00	19.6	2.1	121.1
STD4	6/29/00	20.0	2.0	120.4
STD4	6/29/00	20.1	2.0	120.8
STD4	6/30/00	20.0	2.0	120.0
STD4	6/30/00	20.0	2.0	120.2
STD4	7/6/00	20.0	2.0	119.9
STD4	7/6/00	19.9	2.1	119.8
STD4	7/11/00	19.9	2.0	119.6
STD4	7/11/00	20.0	2.0	120.1
STD4	7/11/00	20.0	2.0	120.1
STD4	7/12/00	20.1	2.0	120.6
STD4	7/12/00	20.1	2.0	120.7
STD4	7/18/00	20.0	2.0	119.8
STD4	7/18/00	19.9	2.1	119.9
STD4	7/18/00	20.0	2.0	120.2
STD4	7/19/00	20.1	2.0	120.3
STD4	7/19/00	20.0	1.9	120.9
STD4	7/19/00	20.1	1.9	121.0
STD4	7/20/00	20.0	2.0	121.5
STD4	7/20/00	20.0	2.1	120.8
STD4	7/20/00	20.1	2.1	120.9
STD4	7/21/00	19.7	2.0	119.6
STD4	7/21/00	19.8	2.1	120.3
STD4	7/21/00	19.9	2.1	120.7
STD4	7/25/00	20.0	2.0	120.1
STD4	7/25/00	20.2	2.0	120.5
STD4	7/25/00	20.1	2.0	120.5
STD4	8/15/00	20.2	2.0	121.0
STD4	8/15/00	20.9	2.1	122.6
STD4	8/31/00	20.0	2.0	120.1
STD4	8/31/00	20.1	2.0	120.8
STD4	8/31/00	20.2	2.0	120.8
STD4	9/1/00	20.1	2.0	122.3
STD4	9/1/00	20.1	2.0	120.5
STD4	10/2/00	19.7	2.0	119.2
STD4	10/2/00	19.8	2.0	119.6
STD4	10/2/00	19.8	2.0	120.7
STD4	10/2/00	19.8	2.0	122.2
STD4	10/3/00	19.6	2.0	119.3
STD4	10/3/00	19.6	2.0	119.3
STD4	10/3/00	19.6	2.0	119.5
STD4	10/4/00	20.0	2.0	120.1
STD4	10/4/00	20.0	2.0	120.2
STD4	10/4/00	20.1	2.0	120.4
STD4	10/12/00	-	-	119.9
STD4	10/12/00	-	-	120.3
<i>N</i>		47	47	49
<i>Given Value</i>		20	2	120
<i>Average</i>		20	2	120
<i>Standard Deviation</i>		0.2	0.0	0.7

APPENDIX A – Water Resources

A.5 Alkalinity and Anion QC Data

A.5.2 Bottle Blanks, Trip Blanks, Lab Reagent Blanks and Preparation Blanks

Bottle Blanks verify that the interior surfaces of sample bottles are free of contamination (below detection limit). The blank consists of a de-ionized water rinse of a bottle after bottles have been prepared for sample collection.

Trip Blanks measure potential sample contamination from the sample bottle, reagent water, or contamination from preparing, handling or transporting the blank from the field to the laboratory and back. A trip blank was prepared by filling a sample bottle with de-ionized water. It was transported in the sample-shipping container to the field. The bottle cap was removed in the field and was exposed to the sampling environment for the length of time an actual sample would be open to the elements. The bottle was capped and transported back to the lab where it was then analyzed.

Lab Reagent Blanks verify that the reagent water used in the preparation of standards and dilutions is free of contamination (below detection limit). It also verifies that autosampler vials and caps are free of contamination. Reagent water is poured directly into an autosampler vial and analyzed.

Preparation Blanks verify that there is no introduction of contamination through the preparation of samples. These blanks were only prepared when a sample or samples required filtration in the laboratory. Preparation Blanks were prepared by filtering and analyzing an aliquot of reagent water.

Detection limits are defined as the concentration of the most dilute calibration standard (standard 1).

EPA Method 300.00 Bottle Blanks by Ion Chromatography

<u>Sample Name</u>	<u>IC Analysis Date</u>	<u>Chloride (ppm)</u>	<u>N in Nitrate (ppm)</u>	<u>Sulfate (ppm)</u>
Bottle Blank AN-001	5/1/00	bdl	bdl	bdl
Bottle Blank AN-002	6/27/00	bdl	bdl	bdl
Bottle Blank AN-003	7/12/00	bdl	bdl	bdl
Bottle Blank AN-004	7/11/00	bdl	bdl	bdl
Bottle Blank AN-005	8/15/00	bdl	bdl	bdl
Bottle Blank AN-006	8/15/00	bdl	bdl	bdl
Bottle Blank AN-007	8/15/00	bdl	bdl	bdl
Bottle Blank AN-009 (Trip Blank 082800)	8/29/00	bdl	bdl	bdl
Bottle Blank AN-010	11/8/00	bdl	bdl	bdl
Bottle Blank AN-011	11/8/00	bdl	bdl	bdl
Bottle Blank AN-012	11/8/00	bdl	bdl	bdl
<i>Note: bdl = below detection limit</i>				
		# of runs	11	11
		# of runs above DL	0	0
		Maximum value above DL	N/A	N/A

EPA Method 300.00 Trip Blanks by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
TRIP BLANK 050100	5/2/00	bdl	bdl	bdl
TRIP BLANK 061900	6/20/00	bdl	-	bdl
TRIP BLANK 062000	6/21/00	bdl	bdl	bdl
TRIP BLANK 062600	6/27/00	bdl	bdl	bdl
TRIP BLANK 062700	6/29/00	bdl	bdl	bdl
TRIP BLANK 062800	6/29/00	bdl	bdl	bdl
TRIP BLANK 062900	6/30/00	bdl	bdl	bdl
TRIP BLANK 063000	6/30/00	bdl	bdl	bdl
TRIP BLANK 071000	7/11/00	bdl	bdl	bdl
TRIP BLANK 071700	7/18/00	bdl	bdl	bdl
TRIP BLANK 071800	7/19/00	bdl	bdl	bdl
TRIP BLANK 071900	7/20/00	bdl	bdl	bdl
TRIP BLANK 072000	7/21/00	bdl	bdl	bdl
TRIP BLANK 072400	7/25/00	bdl	bdl	bdl
TRIP BLANK 081400	8/15/00	bdl	bdl	bdl
TRIP BLANK 082800	8/29/00	bdl	bdl	bdl
TRIP BLANK 082900	8/30/00	bdl	bdl	bdl
TRIP BLANK 083000	8/31/00	bdl	bdl	bdl
TRIP BLANK 093000	10/3/00	bdl	bdl	bdl
TRIP BLANK 100100	10/2/00	bdl	bdl	bdl

Note: bdl = below detection limit

<i># of runs</i>	19	18	19
<i># of runs above DL</i>	0	0	0
<i>Maximum value above DL</i>	N/A	N/A	N/A

EPA Method 300.00 Laboratory Reagent Blanks by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
REAGENT WATER BLANK	5/2/00	bdl	bdl	bdl
REAGENT WATER BLANK	6/20/00	-	bdl	-
REAGENT WATER BLANK	6/21/00	bdl	-	bdl
REAGENT WATER BLANK	6/21/00	bdl	bdl	bdl
REAGENT WATER BLANK	6/27/00	bdl	bdl	bdl
REAGENT WATER BLANK	6/29/00	bdl	bdl	bdl
REAGENT WATER BLANK	6/30/00	bdl	bdl	bdl
REAGENT WATER BLANK	7/6/00	bdl	bdl	bdl
REAGENT WATER BLANK	7/11/00	bdl	bdl	bdl
REAGENT WATER BLANK	7/12/00	bdl	bdl	bdl
REAGENT WATER BLANK	7/18/00	bdl	bdl	bdl
REAGENT WATER BLANK	7/19/00	bdl	bdl	bdl
REAGENT WATER BLANK	7/20/00	bdl	bdl	bdl
REAGENT WATER BLANK	7/21/00	bdl	bdl	bdl
REAGENT WATER BLANK	7/25/00	bdl	bdl	bdl
REAGENT WATER BLANK	8/15/00	bdl	bdl	bdl
REAGENT WATER BLANK	8/29/00	bdl	bdl	bdl
REAGENT WATER BLANK	8/30/00	bdl	bdl	bdl
REAGENT WATER BLANK	8/31/00	bdl	bdl	bdl
REAGENT WATER BLANK	10/2/00	bdl	bdl	bdl
REAGENT WATER BLANK	10/3/00	bdl	bdl	bdl
REAGENT WATER BLANK	10/4/00	bdl	bdl	bdl
REAGENT WATER BLANK	10/12/00	-	-	bdl
REAGENT WATER BLANK	11/8/00	bdl	bdl	bdl

Note: bdl = below detection limit

# of runs	22	22	23
# of runs above DL	0	0	0
Maximum value above DL	n/a	n/a	n/a

EPA Method 300.00 Anion Preparation Blanks by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
-				-
PREP BLANK	5/2/00	bdl	bdl	bdl
PREP BLANK	6/20/00	-	bdl	-
PREP BLANK	6/21/00	bdl	-	bdl
PREP BLANK	6/30/00	bdl	bdl	bdl
PREP BLANK	7/11/00	bdl	bdl	bdl
PREP BLANK	7/18/00	bdl	bdl	bdl
PREP BLANK	7/19/00	bdl	bdl	bdl
PREP BLANK	7/21/00	bdl	bdl	bdl
PREP BLANK	7/25/00	bdl	bdl	bdl
PREP BLANK	8/31/00	bdl	bdl	bdl
<i>Note: bdl = below detection limit</i>				
	# of runs	9	9	9
	# of runs above DL	0	0	0
	Maximum value above DL	n/a	n/a	n/a

APPENDIX A – Water Resources

A.5 Alkalinity and Anion QC Data

A.5.3 Field Duplicates and Splits and Laboratory Duplicates

Field duplicates are samples collected identically and consecutively over a minimum period of time. They provide a measure of the total field sampling and laboratory analytical precision, including that resulting from the heterogeneity of the medium being sampled.

Field Splits are randomly chosen samples that have been collected into a sample bottle and then "split" by pouring half the sample into another sample bottle. They provide a measure of the heterogeneity of the medium being sampled.

Laboratory Duplicates are random samples analyzed twice, non-consecutively, in order to assess instrument or method performance over the duration of analysis.

Percent difference of duplicates samples are calculated by dividing the absolute value of the difference between the original and the duplicate sample by the average value of the two samples. We then multiply this value by 100 to obtain percent units.

Alkalinity Field Duplicate Samples

Sample Name	CaCO ₃ (mg/L)
MW-5 050100	250
MW-5 050100 Field Dup	240
<i>% difference</i>	4%
GKM-3RED 061900	225
GKM-3RED 061900 Field Dup	220
<i>% difference</i>	2%
MLS-5RED 062000	210
MLS-5RED 062000 Field Dup	200
<i>% difference</i>	5%
GKM-7BLUE 062600	230
GKM-7BLUE 062600 Field Dup	220
<i>% difference</i>	4%
MLS-3RED 062700	255
MLS-3RED 062700 Field Dup	260
<i>% difference</i>	2%
GKW-4 062800	180
GKW-4 062800 Field Dup	180
<i>% difference</i>	0%
MW-4 063000	315
MW-4 063000 Field Dup	325
<i>% difference</i>	3%
GKW-8 062900	115
GKW-8 062900 Field Dup	120
<i>% difference</i>	4%
GKM-2W 071700	130
GKM-2W 071700 Field Dup	140
<i>% difference</i>	7%
GKW-4 071900	185
GKW-4 071900 Field Dup	195
<i>% difference</i>	5%

Sample Name	CaCO ₃ (mg/L)
MW-5 071800	270
MW-5 071800 Field Dup	255
<i>% difference</i>	6%
GKW-7 072000	160
GKW-7 072000 Field Dup	155
<i>% difference</i>	3%
GKW-9 072400	260
GKW-9 072400 Field Dup	315
<i>% difference</i>	19%
MW-4 082800	295
MW-4 082800 Field Dup	305
<i>% difference</i>	3%
GKW-9 082900	305
GKW-9 082900 Field Dup	285
<i>% difference</i>	7%
GKW-2 083000	275
GKW-2 083000 Field Dup	285
<i>% difference</i>	4%
GKW-1 093000	155
GKW-1 093000 Field Dup	165
<i>% difference</i>	6%
GKW-8 092900	120
GKW-8 092900 Field Dup	125
<i>% difference</i>	4%
MW-4 100100	290
MW-4 100100 Field Dup	280
<i>% difference</i>	4%

Alkalinity Field Split Samples

Sample Name	CaCO ₃ (mg/L)
MW-5 050100	250
MW-5 050100 Field Split	270
<i>% difference</i>	8%
GKM-3RED 061900	225
GKM-3RED 061900 Field Split	195
<i>% difference</i>	14%
MLS-5RED 062000	210
MLS-5RED 062000 Field Split	200
<i>% difference</i>	5%
GKM-7BLUE 062600	230
GKM-7BLUE 062600 Field Split	220
<i>% difference</i>	4%
MLS-3RED 062700	255
MLS-3RED 062700 Field Split	245
<i>% difference</i>	4%
GKW-4 062800	180
GKW-4 062800 Field Split	180
<i>% difference</i>	0%
GKW-8 062900	115
GKW-8 062900 Field Split	105
<i>% difference</i>	9%
MW-4 063000	315
MW-4 063000 Field Split	305
<i>% difference</i>	3%
GKM-2W 071700	130
GKM-2W 071700 Field Split	135
<i>% difference</i>	4%
GKW-4 071900	185
GKW-4 071900 Field Split	190
<i>% difference</i>	3%

Sample Name	CaCO ₃ (mg/L)
MW-5 071800	270
MW-5 071800 Field Split	270
<i>% difference</i>	0%
GKW-7 072000	160
GKW-7 072000 Field Split	160
<i>% difference</i>	0%
GKW-9 072400	260
GKW-9 072400 Field Split	315
<i>% difference</i>	19%
MW-4 082800	295
MW-4 082800 Field Split	300
<i>% difference</i>	2%
GKW-9 082900	305
GKW-9 082900 Field Split	265
<i>% difference</i>	14%
GKW-2 083000	275
GKW-2 083000 Field Split	215
<i>% difference</i>	24%
GKW-8 092900	120
GKW-8 092900 Field Split	110
<i>% difference</i>	9%
GKW-1 093000	155
GKW-1 093000 Field Split	315
<i>% difference</i>	68%
MW-4 100100	290
MW-4 100100 Field Split	275
<i>% difference</i>	5%

Alkalinity Laboratory Duplicate Samples

Sample Name	CaCO ₃ (mg/L)	Sample Name	CaCO ₃ (mg/L)	Sample Name	CaCO ₃ (mg/L)	Sample Name	CaCO ₃ (mg/L)
ALYSD-1 081400	225	GKM-4W 100100	240	GKW-11 071800	240	MLS-4RED 100100	285
ALYSD-1 081400 Lab Dup	225	GKM-4W 100100 Lab Dup	245	GKW-11 071800 Lab Dup	235	MLS-4RED 100100 Lab Dup	275
% difference	0%	% difference	2%	% difference	2%	% difference	4%
ALYSD2-2 071700	290	GKM-5BLUE 061900	162	GKW-2 062800	175	MLS-4W 100100	275
ALYSD2-2 071700 Lab Dup	290	GKM-5BLUE 061900 Lab Dup	155	GKW-2 062800 Lab Dup	175	MLS-4W 100100 Lab Dup	280
% difference	0%	% difference	4%	% difference	0%	% difference	2%
BLYSD-2 072000	270	GKM-6GREEN 092900	130	GKW-2 071900	200	MLS-5GREEN 062700	235
BLYSD-2 072000 Lab Dup	270	GKM-6GREEN 092900 Lab Dup	135	GKW-2 071900 Lab Dup	185	MLS-5GREEN 062700 Lab Dup	225
% difference	0%	% difference	4%	% difference	8%	% difference	4%
GKM-1WB 093000	240	GKM-6W 082900	135	GKW-5 062900	155	MLS-5W 071800	275
GKM-1WB 093000 Lab Dup	245	GKM-6W 082900 Lab Dup	140	GKW-5 062900 Lab Dup	165	MLS-5W 071800 Lab Dup	250
% difference	2%	% difference	4%	% difference	6%	% difference	10%
GKM-2BLUE 071700	150	GKM-7W 072400	195	LYSD2-1 082800	720	MW-1 050100	327
GKM-2BLUE 071700 Lab Dup	145	GKM-7W 072400 Lab Dup	190	LYSD2-1 082800 Lab Dup	700	MW-1 050100 Lab Dup	315
% difference	3%	% difference	3%	% difference	3%	% difference	4%
GKM-3BLUE 093000	215	GKM-7W 092900	180	LYSD2-5 083000	15	MW-1 100100	320
GKM-3BLUE 093000 Lab Dup	215	GKM-7W 092900 Lab Dup	165	LYSD2-5 083000 Lab Dup	15	MW-1 100100 Lab Dup	320
% difference	0%	% difference	9%	% difference	0%	% difference	0%
GKM-3GREEN 071700	235	GKM-8 BLUE 062600	245	LYSS-5 071700	15	MW-2 063000	270
GKM-3GREEN 071700 Lab Dup	225	GKM-8 BLUE 062600 Lab Dup	245	LYSS-5 071700 Lab Dup	20	MW-2 063000 Lab Dup	280
% difference	4%	% difference	0%	% difference	29%	% difference	4%
GKM-3RED 083000	205	GKM-8RED 082900	235	LYSVD-1 082800	355		
GKM-3RED 083000 Lab Dup	210	GKM-8RED 082900 Lab Dup	225	LYSVD-1 082800 Lab Dup	370		
% difference	2%	% difference	4%	% difference	4%		
GKM-3W 083000	210	GKM-9W 082900	175	LYSVD-9 092900	150		
GKM-3W 083000 Lab Dup	220	GKM-9W 082900 Lab Dup	185	LYSVD-9 092900 Lab Dup	155		
% difference	5%	% difference	6%	% difference	3%		
GKM-4RED 072000	255	GKW-10 082800	280	MLS-3RED 072000	230		
GKM-4RED 072000 Lab Dup	280	GKW-10 082800 Lab Dup	275	MLS-3RED 072000 Lab Dup	210		
% difference	9%	% difference	2%	% difference	9%		

EPA Method 300.0 Field Split Samples by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
MW-5 FIELD SPLIT 050100	5/2/00	6	0.4	32.6
MW-5 050100	5/2/00	6	0.4	32.6
GKM-3RED 061900	6/21/00	8.9	-	91.6
GKM-3RED 061900 Field Split	6/21/00	9.3	-	92.6
% difference		4.4%	N/A	1.1%
MLS-5 RED 062000	6/21/00	8	0.2	58.7
MLS-5 RED 062000 Field Split	6/21/00	8.1	0.2	58.8
% difference		1.2%	0.0%	0.2%
GKM-7BLUE 062600	6/27/00	6.1	bdl	70.7
GKM-7BLUE 062600 Field Split	6/27/00	6.1	bdl	70.7
% difference		0.0%	N/A	0.0%
MLS-3 RED 062700	6/29/00	36	0.6	273.5
MLS-3 RED 062700 Field Split	6/29/00	35.5	0.7	267.7
% difference		1.4%	15.4%	2.1%
GKW-4 062800	6/29/00	8.7	0.8	92.8
GKW-4 062800 Field Split	6/29/00	8.6	0.8	92.8
% difference		1.2%	0.0%	0.0%
GKW-8 062900	6/30/00	8	0.6	35.6
GKW-8 062900 Field Split	6/30/00	8	0.6	35.7
% difference		0.0%	0.0%	0.3%
MW-4 063000	6/30/00	10.1	1.2	34.3
MW-4 063000 Field Split	6/30/00	9.9	1.2	34.2
% difference		2.0%	0.0%	0.3%
MW-5 071800	7/19/00	7.6	0.6	38.9
MW-5 071800 Field Split	7/19/00	7.5	0.6	39
% difference		1%	0%	0%
GKM-2W 071700	7/18/00	5.3	0.4	28.4
GKM-2W 071700 Field Split	7/19/00	5.2	0.4	28.2
% difference		1.9%	0.0%	0.7%
GKW-4 071900	7/20/00	8.5	0.4	84.7
GKW-4 071900 Field Split	7/20/00	8.4	0.4	84.8
% difference		1.2%	0.0%	0.2%
GKW-7 072000	7/21/00	6.8	bdl	31.9
GKW-7 072000 Field Split	7/21/00	6.8	bdl	31.8
% difference		0.0%	N/A	0.0%
<i>Note: bdl = below detection limit</i>				

EPA Method 300.0 Field Split Samples by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
GKW-9 072400	7/25/00	13	bdl	56.6
GKW-9 072400 Field Split	7/25/00	13	bdl	56.6
<i>% difference</i>		0.8%	N/A	0.2%
MW-4 082800	8/29/00	16.5	1.94	47.8
MW-4 082800 Field Split	8/29/00	16.4	1.94	47.7
<i>% difference</i>		1%	0%	0%
GKW-9 082900	8/30/00	11.5	bdl	68.1
GKW-9 082900 Field Split	8/30/00	11.5	bdl	68.2
<i>% difference</i>		0%	N/A	0%
GKW-2 083000	8/31/00	9.2	0.9	85.5
GKW-2 083000 Field Split	8/31/00	9.3	0.9	85.6
<i>% difference</i>		1%	0%	0%
MW-4 100100	10/2/00	18.6	2.2	49.8
MW-4 100100 Field Split	10/2/00	18.5	2.2	49.9
<i>% difference</i>		1%	0%	0%
GKW-1 093000	10/3/00	16.1	1	75.9
GKW-1 093000 Field Split	10/3/00	16.1	1	75.7
<i>% difference</i>		0%	0%	0%
MW-4 100100	10/3/00	18.9	2.2	48
MW-4 100100 Field Split	10/3/00	18.8	2.2	47.9
<i>% difference</i>		0%	0%	0%
GKW-8 092900	10/4/00	7.5	0.5	35.1
GKW-8 092900 Field Split	10/4/00	7.6	0.5	35.1
<i>% difference</i>		0%	0%	0%

Note: bdl = below detection limit

EPA Method 300.0 Field Duplicate Samples by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
MW-5 050100	5/2/00	6	0.4	32.6
MW-5 050100 Field Dup	5/2/00	6	0.4	32.7
<i>% difference</i>		0%	0%	0%
GKM-3RED 061900	6/21/00	8.9	-	91.6
GKM-3RED 061900 Field Dup	6/21/00	9.4	-	92.6
<i>% difference</i>		5%	N/A	1%
MLS-5 RED 062000	6/21/00	8	0.2	58.7
MLS-5 RED 062000 Field Dup	6/21/00	8	0.2	58.9
<i>% difference</i>		0%	0%	0%
GKM-7BLUE 062600	6/27/00	6.1	bdl	70.7
GKM-7BLUE 062600 Field Dup	6/27/00	6.3	bdl	73.8
<i>% difference</i>		3%	N/A	4%
MLS-3 RED 062700	6/29/00	36	0.6	273.5
MLS-3 RED 062700 Field Dup	6/29/00	30.1	1.2	198.7
<i>% difference</i>		18%	67%	32%
GKW-4 062800	6/29/00	8.7	0.8	92.8
GKW-4 062800 Field Dup	6/29/00	8.6	0.8	92.8
<i>% difference</i>		1%	0%	0%
GKW-8 062900	6/30/00	8	0.6	35.6
GKW-8 062900 Field Dup	6/30/00	8.1	0.6	35.6
<i>% difference</i>		1%	0%	0%
MW-4 063000	6/30/00	10.1	1.2	34.3
MW-4 063000 Field Dup	6/30/00	10	1.2	35
<i>% difference</i>		1%	0%	2%
GKM-2W 071700 Field Dup	7/18/00	5.3	0.4	28.5
GKM-2W 071700	7/18/00	5.3	0.4	28.4
<i>% difference</i>		0%	0%	0%
MW-5 071800 Field Dup	7/19/00	7.5	0.6	39.1
MW-5 071800	7/19/00	7.6	0.6	38.9
<i>% difference</i>		1%	0%	1%
GKW-4 071900	7/20/00	8.5	0.4	84.7
GKW-4 071900 Field Dup	7/20/00	8.5	0.4	84.6
<i>% difference</i>		0%	0%	0%
GKW-7 072000	7/21/00	6.8	bdl	31.9
GKW-7 072000 Field Dup	7/21/00	6.8	bdl	31.8
<i>% difference</i>		0%	N/A	0%

Note: bdl = below detection limit

EPA Method 300.0 Field Duplicate Samples by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
GKW-9 072400	7/25/00	13	bdl	56.6
GKW-9 072400 Field Dup	7/25/00	13.1	bdl	56.5
<i>% difference</i>		1%	N/A	0%
MW-4 082800 Field Dup	8/29/00	16.5	1.95	47.9
MW-4 082800	8/29/00	16.5	1.94	47.8
<i>% difference</i>		0%	1%	0%
GKW-9 082900 Field Dup	8/30/00	11.5	bdl	68.1
GKW-9 082900	8/30/00	11.5	bdl	68.1
<i>% difference</i>		0%	N/A	0%
GKW-2 083000 Field Dup	8/31/00	9.2	0.9	85.5
GKW-2 083000	8/31/00	9.2	0.9	85.5
<i>% difference</i>		0%	0%	0%
MW-4 100100 Field Dup	10/2/00	18.7	2.2	50.1
MW-4 100100	10/2/00	18.6	2.2	49.8
<i>% difference</i>		1%	0%	1%
GKW-1 093000	10/3/00	16.1	1	75.9
GKW-1 093000 Field Dup	10/3/00	16.1	1	75.7
<i>% difference</i>		0%	0%	0%
MW-4 100100	10/3/00	18.9	2.2	48
MW-4 100100 Field Dup	10/3/00	18.8	2.2	48.1
<i>% difference</i>		0%	0%	0%
GKW-8 092900	10/4/00	7.5	0.5	35.1
GKW-8 092900 Field Dup	10/4/00	7.5	0.5	35.1
<i>% difference</i>		0%	0%	0%

Note: bdl = below detection limit

EPA Method 300.0 Laboratory Duplicate Samples by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
MW-4 050100	5/2/00	9.5	1.1	35.2
MW-4 050100 Lab Dup	5/2/00	9.5	1.1	35.5
% difference		0%	0%	1%
GKM-1RED 061900	6/20/00	-	0.4	-
GKM-1RED 061900 Lab Dup	6/20/00	-	0.4	-
% difference		N/A	0%	N/A
GKM-4RED 061900	6/20/00	-	0.2	-
GKM-4RED 061900 Lab Dup	6/20/00	-	0.2	-
% difference		N/A	0%	N/A
GKM-1RED 061900 1/4 DIL	6/21/00	3	-	27.6
GKM-1RED 061900 1/4 DIL Lab Dup	6/21/00	3	-	27.7
% difference		0%	N/A	0%
GKM-4RED 061900 1/4 DIL	6/21/00	1.5	-	21.1
GKM-4RED 061900 1/4 DIL Lab Dup	6/21/00	1.5	-	20.7
% difference		0%	N/A	2%
GKM-2BLUE 062000	6/21/00	4.3	0.1	24.3
GKM-2BLUE 062000 Lab Dup	6/21/00	4.4	0.2	24.5
% difference		2%	67%	1%
GKM-6BLUE 062600	6/27/00	11.2	bdl	96.2
GKM-6BLUE 062600 Lab Dup	6/27/00	11.3	bdl	96.5
% difference		1%	N/A	0%
GKM-8GREEN 062600	6/27/00	7.5	bdl	9.9
GKM-8GREEN 062600 Lab Dup	6/27/00	7.4	bdl	9.9
% difference		1%	N/A	0%
MLS-5W 062700	6/29/00	7.8	bdl	58.2
MLS-5W 062700 Lab Dup	6/29/00	7.7	0.2	58.6
% difference		1%	N/A	1%
GKW-1 062800	6/29/00	18.8	1.1	72.1
GKW-1 062800 Lab Dup	6/29/00	18.7	1.1	72.3
% difference		1%	0%	0%
GKM-2W 062800	6/29/00	4.7	0.4	27.3
GKM-2W 062800 Lab Dup	6/29/00	4.6	0.4	27.3
% difference		2%	0%	0%
MW-2 063000	6/30/00	13	0.5	51.6
MW-2 063000 Lab Dup	6/30/00	12.8	0.5	51.7
% difference		2%	0%	0%
LYSA-300 BLANK	7/6/00	bdl	bdl	bdl
LYSA-300 BLANK Lab Dup	7/6/00	bdl	bdl	bdl
% difference		N/A	N/A	N/A

Note: bdl = below detection limit

EPA Method 300.0 Laboratory Duplicate Samples by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
GKM-1W 071700	7/18/00	10.3	0.2	97.6
GKM-1W 071700 Lab Dup	7/18/00	10.2	0.2	97.7
<i>% difference</i>		1%	0%	0%
GKM-1RED 071700	7/18/00	10	0.2	95.6
GKM-1RED 071700 Lab Dup	7/18/00	9.9	0.2	95.2
<i>% difference</i>		1%	0%	0%
GKM-2BLUE 071700	7/18/00	5	0.4	27.8
GKM-2BLUE 071700 Lab Dup	7/18/00	5.1	0.4	28.3
<i>% difference</i>		2%	0%	2%
GKW-11 071800	7/19/00	25.2	0.3	48
GKW-11 071800 Lab Dup	7/19/00	25.1	0.3	48.2
<i>% difference</i>		0%	0%	0%
MLS-4W 071800	7/19/00	12.6	1.2	39.3
MLS-4W 071800 Lab Dup	7/19/00	12.6	1.2	39.7
<i>% difference</i>		0%	0%	1%
GKW-11 071800 1/2 DIL	7/19/00	12.8	0.1	23.5
GKW-11 071800 1/2 DIL Lab Dup	7/19/00	12.9	0.1	23.6
<i>% difference</i>		1%	0%	0%
GKW-1 071900	7/20/00	18.8	1.1	69.9
GKW-1 071900 Lab Dup	7/20/00	18.7	1.1	70
<i>% difference</i>		1%	0%	0%
GKW-3 071900	7/20/00	8.2	0.2	88.4
GKW-3 071900 Lab Dup	7/20/00	8.1	0.1	88.5
<i>% difference</i>		1%	67%	0%
MLS-3W 072000	7/21/00	bdl	bdl	bdl
MLS-3W 072000 Lab Dup	7/21/00	bdl	bdl	bdl
<i>% difference</i>		N/A	N/A	N/A
GKM-8BLUE 072000	7/21/00	bdl	bdl	bdl
GKM-8BLUE 072000 Lab Dup	7/21/00	bdl	bdl	bdl
<i>% difference</i>		N/A	N/A	N/A
GKM-4BLUE 072000	7/21/00	bdl	bdl	bdl
GKM-4BLUE 072000 Lab Dup	7/21/00	bdl	bdl	bdl
<i>% difference</i>		N/A	N/A	N/A
GKW-9 072400	7/25/00	bdl	bdl	bdl
GKW-9 072400 Lab Dup	7/25/00	bdl	bdl	bdl
<i>% difference</i>		N/A	N/A	N/A
GKM-7W 072400	7/25/00	bdl	bdl	bdl
GKM-7W 072400 Lab Dup	7/25/00	bdl	bdl	bdl
<i>% difference</i>		N/A	N/A	N/A

Note: bdl = below detection limit

EPA Method 300.0 Laboratory Duplicate Samples by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
ALYSD-1 081400 1/5 DIL	8/15/00	10.6	1.1	19.4
ALYSD-1 081400 1/5 DIL Lab Dup	8/15/00	10.6	1.1	19.4
<i>% difference</i>		0%	0%	0%
GKW-11 082800	8/29/00	9.9	0.56	40
GKW-11 082800 Lab Dup	8/29/00	10	0.55	40.7
<i>% difference</i>		1%	2%	2%
MW-4 082800 FD	8/29/00	16.5	1.81	47.9
MW-4 082800 FD Lab Dup	8/29/00	16.7	1.82	48.6
<i>% difference</i>		1%	1%	1%
GKW-10 082800	8/29/00	9.1	0.07	31.1
GKW-10 082800 Lab Dup	8/29/00	9.1	0.06	31.4
<i>% difference</i>		0%	15%	1%
MLS-5W 082800	8/29/00	7.7	0.11	42
MLS-5W 082800 Lab Dup	8/29/00	7.7	0.1	42.8
<i>% difference</i>		0%	10%	2%
LYSVD-9 082900	8/30/00	8.4	0.3	56.3
LYSVD-9 082900 Lab Dup	8/30/00	8.7	0.31	57.8
<i>% difference</i>		4%	3%	3%
GKM-8RED 082900	8/30/00	6.5	bdl	30.1
GKM-8RED 082900 Lab Dup	8/30/00	6.6	bdl	30.4
<i>% difference</i>		2%	N/A	1%
GKW-9 082900 FD	8/30/00	11.5	bdl	68.1
GKW-9 082900 FD Lab Dup	8/30/00	11.8	bdl	68.8
<i>% difference</i>		3%	N/A	1%
GKM-3GREEN 083000	8/31/00	9.7	bdl	59.4
GKM-3GREEN 083000 Lab Dup	8/31/00	9.7	bdl	59.6
<i>% difference</i>		0%	N/A	0%
GKM-4W 083000	8/31/00	6.2	0.3	94.8
GKM-4W 083000 Lab Dup	8/31/00	6.3	0.3	94.9
<i>% difference</i>		2%	0%	0%
GKW-4 083000	8/31/00	8	0.5	93.4
GKW-4 083000 Lab Dup	8/31/00	8.2	0.5	93.2
<i>% difference</i>		2%	0%	0%
LYSD-4 083000 1/20 DIL	9/1/00	1.9	1.1	37.2
LYSD-4 083000 1/20 DIL Lab Dup	9/1/00	1.9	1.1	37
<i>% difference</i>		0%	0%	1%
<i>Note: bdl = below detection limit</i>				

EPA Method 300.0 Laboratory Duplicate Samples by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
GKM-1WC 093000	10/2/00	11.8	0.2	100.4
GKM-1WC 093000 Lab Dup	10/2/00	11.8	0.2	100.2
<i>% difference</i>		0%	0%	0%
GKM-4W 100100	10/2/00	7.2	0.4	92.6
GKM-4W 100100 Lab Dup	10/2/00	7.5	0.4	92.8
<i>% difference</i>		4%	0%	0%
GKW-10 100100	10/2/00	7.9	0.1	15.8
GKW-10 100100 Lab Dup	10/2/00	8	0.1	15.8
<i>% difference</i>		1%	0%	0%
MW-1 100100	10/2/00	10.8	0.3	25.3
MW-1 100100 Lab Dup	10/2/00	10.8	0.3	25.2
<i>% difference</i>		0%	0%	0%
GKM-3W 093000	10/3/00	10.9	0.3	92
GKM-3W 093000 Lab Dup	10/3/00	10.9	0.3	91.6
<i>% difference</i>		0%	0%	0%
GKM-5W 093000	10/3/00	9.7	0.3	94.7
GKM-5W 093000 Lab Dup	10/3/00	9.5	0.3	94.9
<i>% difference</i>		2%	0%	0%
GKW-1 093000	10/3/00	16.1	1	75.9
GKW-1 093000 FD Lab Dup	10/3/00	16.1	1	75.8
<i>% difference</i>		0%	0%	0%
GKM-6W 092900	10/4/00	5.7	bdl	29.3
GKM-6W 092900 Lab Dup	10/4/00	5.8	bdl	29.2
<i>% difference</i>		2%	N/A	0%
GKM-8RED 092900	10/4/00	6.7	bdl	33.1
GKM-8RED 092900 Lab Dup	10/4/00	6.7	bdl	33.1
<i>% difference</i>		0%	N/A	0%
GKM-9W 092900	10/4/00	5.2	bdl	23.4
GKM-9W 092900 Lab Dup	10/4/00	5.2	bdl	23.6
<i>% difference</i>		0%	N/A	1%
LYSVD2-8 092900 1/2 DIL Lab Dup	10/12/00	-	-	62.7
LYSVD2-8 092900 1/2 DIL Lab Dup	10/12/00	-	-	62.7
<i>% difference</i>		N/A	N/A	0%
Bottle Blank AN-011	11/8/00	bdl	bdl	bdl
Bottle Blank AN-011 Duplicate	11/8/00	bdl	bdl	bdl
<i>% difference</i>		N/A	N/A	N/A
<i>Note: bdl = below detection limit</i>				

APPENDIX A – Water Resources

A.5 Alkalinity and Anion QC Data

A.5.4 Laboratory Sample Matrix Spike Samples and Laboratory Fortified Matrix Blanks

Laboratory spikes are samples in which analytes of known concentrations have been added to an aliquot of the sample digest in order to assess matrix effects on analyte recoveries.

Lab Fortified Blank - Lab Fortified Blanks (LFBs) are samples in which analytes of known concentrations have been added to an aliquot of the calibration blank in order to assess matrix effects on analyte recoveries.

Percent spike recoveries are calculated by subtracting the diluted sample value from the spiked sample value and dividing the difference by the amount of spike added. We then multiply this value by 100 to obtain percent units.

EPA Method 300.0 Laboratory Sample Matrix Spikes by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
MW-4 050100	5/2/00	9.5	1.1	35.2
MW-4 050100 Spike	5/2/00	9.6	1.2	37.2
% spike recovery		105%	105%	110%
GKM-1RED 061900	6/20/00	-	0.4	-
GKM-1RED 061900 Spike	6/20/00	-	0.6	-
% spike recovery		N/A	120%	N/A
GKM-4RED 061900	6/20/00	-	0.2	-
GKM-4RED 061900 Spike	6/20/00	-	0.4	-
% spike recovery		N/A	110%	N/A
GKM-1RED 061900 1/4 DIL	6/21/00	3	-	27.6
GKM-1RED 061900 1/4 DIL Spike	6/21/00	3.7	-	29.8
% spike recovery		100%	N/A	99%
GKM-4RED 061900 1/4 DIL	6/21/00	1.5	-	21.1
GKM-4RED 061900 1/4 DIL Spike	6/21/00	2.3	-	24.1
% spike recovery		95%	N/A	102%
GKM-2BLUE 062000	6/21/00	4.3	0.1	24.3
GKM-2BLUE 062000 Spike	6/21/00	5.8	0.3	34.5
% spike recovery		97%	105%	105%
GKM-6BLUE 062600	6/27/00	11.2	bdl	96.2
GKM-6BLUE 062600 Spike	6/27/00	12.5	0.2	99.6
% spike recovery		121%	N/A	109%
GKM-8GREEN 062600	6/27/00	7.5	bdl	9.9
GKM-8GREEN 062600 Spike	6/27/00	9	0.2	21
% spike recovery		113%	N/A	101%
MLS-5W 062700	6/29/00	7.8	bdl	58.2
MLS-5W 062700 Spike	6/29/00	9	0.4	65.1
amount spike added		2	0.2	12
% spike recovery		99%	N/A	106%
GKW-1 062800	6/29/00	18.8	1.1	72.1
GKW-1 062800 Spike	6/29/00	19	1.2	77.3
% spike recovery		104%	105%	103%
MW-2 063000	6/30/00	13	0.5	51.6
MW-2 063000 Spike	6/30/00	13.9	0.6	58.7
% spike recovery		110%	75%	102%

Note: bdl = below detection limit

EPA Method 300.0 Laboratory Sample Matrix Spikes by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
LYSA-300 BLANK	7/6/00	bdl	bdl	bdl
LYSA-300 BLANK Spike	7/6/00	2.1	0.2	11.9
% spike recovery		N/A	N/A	N/A
GKM-1W 071700	7/18/00	10.3	0.2	97.6
GKM-1W 071700 Spike	7/18/00	11.6	0.4	100.1
% spike recovery		117%	110%	102%
GKM-1RED 071700	7/18/00	10	0.2	95.6
GKM-1RED 071700 Spike	7/18/00	11.3	0.4	98.2
% spike recovery		115%	110%	101%
GKM-2BLUE 071700	7/18/00	5	0.4	27.8
GKM-2BLUE 071700 Spike	7/18/00	6.8	0.5	37.3
% spike recovery		115%	70%	102%
GKW-11 071800	7/19/00	25.2	0.3	48
GKW-11 071800 Spike	7/19/00	25	0.4	55.6
% spike recovery		116%	65%	103%
MLS-4W 071800	7/19/00	12.6	1.2	39.3
MLS-4W 071800 Spike	7/19/00	13.7	1.3	47.6
% spike recovery		118%	110%	102%
GKW-11 071800 1/2 DIL	7/20/00	12	0.2	23.3
GKW-11 071800 1/2 DIL Spike	7/20/00	12.8	0.3	32.9
% spike recovery		100%	60%	99%
GKW-1 071900	7/20/00	18.8	1.1	69.9
GKW-1 071900 Spike	7/20/00	19	1.2	75.2
% spike recovery		104%	105%	102%
GKW-3 071900	7/20/00	8.2	0.2	88.4
GKW-3 071900 Spike	7/20/00	9.4	0.3	92.2
% spike recovery		101%	60%	105%
MLS-3W 072000	7/21/00	bdl	bdl	bdl
MLS-3W 072000 Spike	7/21/00	bdl	bdl	bdl
% spike recovery		N/A	N/A	N/A
GKM-8BLUE 072000	7/21/00	bdl	bdl	bdl
GKM-8BLUE 072000 Spike	7/21/00	bdl	bdl	bdl
% spike recovery		N/A	N/A	N/A

Note: bdl = below detection limit

EPA Method 300.0 Laboratory Sample Matrix Spikes by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
GKM-4BLUE 072000	7/21/00	bdl	bdl	bdl
GKM-4BLUE 072000 Spike	7/21/00	bdl	bdl	bdl
% spike recovery		N/A	N/A	N/A
GKW-9 072400	7/25/00	bdl	bdl	bdl
GKW-9 072400 Spike	7/25/00	bdl	bdl	bdl
% spike recovery		N/A	N/A	N/A
GKM-7W 072400	7/25/00	bdl	bdl	bdl
GKM-7W 072400 Spike	7/25/00	bdl	bdl	bdl
% spike recovery		N/A	N/A	N/A
ALYSD-1 081400 1/5 DIL	8/15/00	10.6	1.1	19.4
ALYSD-1 081400 1/5 DIL Spike	8/15/00	11.6	1.2	29.7
% spike recovery		103%	105%	102%
GKW-11 082800	8/29/00	9.9	0.56	40
GKW-11 082800 Spike	8/29/00	11.1	0.61	48.9
% spike recovery		110%	106%	108%
MW-4 082800 FD	8/29/00	16.5	1.81	47.9
MW-4 082800 FD Spike	8/29/00	17.1	1.75	56.1
% spike recovery		113%	121%	108%
GKW-10 082800	8/29/00	9.1	0.07	31.1
GKW-10 082800 Spike	8/29/00	10.2	0.15	40.5
% spike recovery		101%	87%	104%
MLS-5W 082800	8/29/00	7.7	0.11	42
MLS-5W 082800 Spike	8/29/00	9	0.19	50.7
% spike recovery		104%	91%	108%
LYSVD-9 082900	8/30/00	8.4	0.3	56.3
LYSVD-9 082900 Spike	8/30/00	9.9	0.37	63.6
% spike recovery		117%	100%	108%
GKM-8RED 082900	8/30/00	6.5	0	30.1
GKM-8RED 082900 Spike	8/30/00	7.9	0.08	39.7
% spike recovery		103%	80%	105%
GKW-9 082900 FD	8/30/00	11.5	0	68.1
GKW-9 082900 FD Spike	8/30/00	12.7	0.07	74.6
% spike recovery		118%	70%	111%

Note: bdl = below detection limit

EPA Method 300.0 Laboratory Sample Matrix Spikes by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
GKM-3GREEN 083000	8/31/00	9.7	bdl	59.4
GKM-3GREEN 083000 Spike	8/31/00	10.8	0.2	65.8
% spike recovery		104%	N/A	103%
GKM-4W 083000	8/31/00	6.2	0.3	94.8
GKM-4W 083000 Spike	8/31/00	7.6	0.5	97.3
% spike recovery		101%	115%	100%
GKW-4 083000	8/31/00	8	0.5	93.4
GKW-4 083000 Spike	8/31/00	9.2	0.6	96.1
% spike recovery		100%	75%	100%
LYSD-4 083000 1/20 DIL	9/1/00	1.9	1.1	37.2
LYSD-4 083000 1/20 DIL Spike	9/1/00	3.6	1.2	45.6
% spike recovery		95%	105%	101%
GKM-1WC 093000	10/2/00	11.8	0.2	100.4
GKM-1WC 093000 Spike	10/2/00	12.7	0.4	102.8
% spike recovery		104%	110%	104%
GKM-4W 100100	10/2/00	7.2	0.4	92.6
GKM-4W 100100 Spike	10/2/00	8.8	0.6	95.6
% spike recovery		116%	120%	102%
GKW-10 100100	10/2/00	7.9	0.1	15.8
GKW-10 100100 Spike	10/2/00	9.2	0.3	26.3
% spike recovery		105%	105%	101%
MW-1 100100	10/2/00	10.8	0.3	25.3
MW-1 100100 Spike	10/2/00	11.7	0.5	35.1
% spike recovery		99%	115%	103%
GKM-3W 093000	10/3/00	10.9	0.3	92
GKM-3W 093000 Spike	10/3/00	11.8	0.5	94.3
% spike recovery		100%	115%	96%
GKM-5W 093000	10/3/00	9.7	0.3	94.7
GKM-5W 093000 Spike	10/3/00	10.7	0.5	97.5
% spike recovery		98%	115%	102%
GKW-1 093000	10/3/00	16.1	1	75.9
GKW-1 093000 FD Spike	10/3/00	16.4	1.1	80.2
% spike recovery		95%	100%	99%

Note: bdl = below detection limit

EPA Method 300.0 Laboratory Sample Matrix Spikes by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
GKM-6W 092900	10/4/00	5.7	0	29.3
GKM-6W 092900 Spike	10/4/00	7.1	0.2	38.3
% spike recovery		99%	100%	99%
GKM-8RED 092900	10/4/00	6.7	0	33.1
GKM-8RED 092900 Spike	10/4/00	7.9	0.2	41.8
% spike recovery		94%	100%	100%
GKM-9W 092900	10/4/00	5.2	0	23.4
GKM-9W 092900 Spike	10/4/00	6.6	0.2	33.1
% spike recovery		96%	100%	100%
LYSVD2-8 092900 1/2 DIL	10/12/00	-	-	62.7
LYSVD2-8 092900 1/2 DIL Spike	10/12/00	-	-	68.6
% spike recovery		N/A	N/A	101%
Bottle Blank AN-012	11/8/00	bdl	bdl	bdl
Bottle Blank AN-012 Spike	11/8/00	1.9	0.1	11.6
% spike recovery		95%	100%	97%

Note: bdl = below detection limit

EPA Method 300.0 Laboratory Fortified Blanks by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
LAB FORTIFIED BLANK % spike recovery	5/3/00	1 100%	0.2 100%	4.9 98%
LAB FORTIFIED BLANK % spike recovery	6/20/00	- N/A	0.2 100%	- N/A
LAB FORTIFIED BLANK % spike recovery	6/21/00	1.1 110%	- N/A	4.8 96%
LAB FORTIFIED BLANK % spike recovery	6/27/00	2 100%	0.2 100%	11.6 97%
LAB FORTIFIED BLANK % spike recovery	6/29/00	1.9 95%	0.2 100%	11.7 98%
LAB FORTIFIED BLANK % spike recovery	6/30/00	1.9 95%	0.2 100%	11.6 97%
LAB FORTIFIED BLANK % spike recovery	7/12/00	1.9 95%	0.2 100%	11.7 98%
LAB FORTIFIED BLANK % spike recovery	7/18/00	1.9 95%	0.2 100%	11.5 96%
LAB FORTIFIED BLANK % spike recovery	7/19/00	1.9 95%	0.2 100%	11.7 98%
LAB FORTIFIED BLANK % spike recovery	7/20/00	2 100%	0.2 100%	11.9 99%
LAB FORTIFIED BLANK % spike recovery	7/21/00	2 100%	0.2 100%	11.6 97%
LAB FORTIFIED BLANK % spike recovery	7/25/00	1.9 95%	0.2 100%	11.6 97%
LAB FORTIFIED BLANK % spike recovery	8/15/00	1.9 95%	0.2 100%	11.8 98%
LAB FORTIFIED BLANK % spike recovery	8/29/00	1.9 95%	0.1 100%	11.8 98%
LAB FORTIFIED BLANK % spike recovery	8/30/00	2 100%	0.09 90%	11.7 98%
LAB FORTIFIED BLANK % spike recovery	8/31/00	1.9 95%	0.2 100%	11.6 97%
LAB FORTIFIED BLANK % spike recovery	9/1/00	2.1 105%	0.2 100%	11.8 98%

EPA Method 300.0 Laboratory Fortified Blanks by Ion Chromatography

Sample Name	IC Analysis Date	Chloride (ppm)	N in Nitrate (ppm)	Sulfate (ppm)
LAB FORTIFIED BLANK % spike recovery	10/2/00	2 100%	0.2 100%	11.7 98%
LAB FORTIFIED BLANK % spike recovery	10/3/00	2 100%	0.2 100%	11.6 97%
LAB FORTIFIED BLANK % spike recovery	10/12/00	- N/A	- N/A	11.3 94%

APPENDIX A – Water Resources

A.6 Metals QC Data

A.6.1 Instrument Performance Check Solutions

The Instrument Performance Check (IPC) is a composite solution containing known concentrations of analytes. The IPC is analyzed for initial and continuous calibration verification.

EPA Method 200.15 Instrument Performance Check Solutions by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
8/2/00	14:35	CW	IPC	0.4727	0.488	10.41	0.4989	0.523	0.499	0.5283	5.029	9.933	0.512	10.49	0.542	0.521	0.502
8/2/00	16:58	CW	IPC	0.4826	0.478	9.911	0.4994	0.513	0.502	0.5154	5.033	10.06	0.506	10.24	0.518	0.507	0.5
8/2/00	17:56	CW	IPC	0.487	0.482	9.927	0.501	0.512	0.503	0.514	5.033	10.09	0.507	9.948	0.518	0.506	0.5
8/4/00	10:41	CW	IPC	0.4866	0.472	9.857	0.5082	0.51	0.504	0.5033	4.912	10.14	0.498	10.64	0.482	0.497	0.493
8/4/00	11:59	CW	IPC	0.4873	0.475	9.768	0.5099	0.505	0.501	0.5028	4.905	10.1	0.498	10.28	0.486	0.496	0.494
8/4/00	12:59	CW	IPC	0.4841	0.465	9.773	0.5006	0.507	0.501	0.4979	4.921	10.1	0.49	10.53	0.478	0.489	0.486
8/4/00	13:58	CW	IPC	0.4831	0.47	9.793	0.5033	0.504	0.499	0.4997	4.899	10.08	0.496	10.18	0.483	0.493	0.489
8/4/00	15:39	CW	IPC	0.4858	0.466	9.714	0.5038	0.505	0.502	0.5025	4.909	10.1	0.494	10.51	0.476	0.493	0.489
8/4/00	16:36	CW	IPC	0.4862	0.461	9.723	0.5017	0.506	0.501	0.4974	4.898	10.1	0.491	10.26	0.474	0.487	0.486
8/7/00	11:33	CW	IPC	0.4778	0.48	9.672	0.5229	0.503	0.499	0.5136	4.95	9.941	0.504	10.35	0.497	0.505	0.499
8/7/00	13:23	CW	IPC	0.47	0.461	9.28	0.5203	0.495	0.497	0.5143	4.941	9.802	0.496	9.973	0.487	0.499	0.494
8/7/00	14:33	CW	IPC	0.4801	0.468	9.643	0.5106	0.504	0.5	0.5033	4.897	9.991	0.495	10.11	0.481	0.491	0.489
8/7/00	15:31	CW	IPC	0.4726	0.47	9.326	0.5253	0.495	0.496	0.521	4.928	9.829	0.505	9.902	0.5	0.505	0.501
8/7/00	17:02	CW	IPC	0.4724	0.459	9.388	0.5085	0.496	0.495	0.5016	4.867	9.847	0.489	10.25	0.482	0.49	0.485
8/8/00	11:26	CW	IPC	0.4897	0.482	9.737	0.5168	0.504	0.501	0.5088	4.99	10.04	0.501	10.54	0.496	0.502	0.496
8/8/00	12:34	CW	IPC	0.4916	0.48	9.738	0.5181	0.507	0.504	0.5109	5.037	10.13	0.506	10.45	0.497	0.502	0.497
8/8/00	13:47	CW	IPC	0.5196	0.515	10.44	0.5371	0.527	0.522	0.5255	5.068	10.66	0.528	10.93	0.506	0.522	0.517
8/8/00	14:48	CW	IPC	0.5069	0.496	10	0.5226	0.518	0.514	0.5162	5.121	10.41	0.515	10.62	0.502	0.509	0.504
8/8/00	15:55	CW	IPC	0.5109	0.506	10.24	0.5313	0.524	0.513	0.5274	5.061	10.44	0.526	10.35	0.511	0.521	0.512
8/8/00	16:45	CW	IPC	0.5107	0.482	10.16	0.5066	0.52	0.512	0.5024	5.037	10.42	0.502	10.78	0.488	0.496	0.488
8/10/00	13:14	CW	IPC	0.4806	0.49	9.736	0.5291	0.501	0.499	0.5265	4.968	9.912	0.514	10.24	0.516	0.515	0.507
8/10/00	14:08	CW	IPC	0.4758	0.457	9.545	0.5013	0.495	0.49	0.4971	4.891	9.802	0.484	10.33	0.475	0.483	0.477
8/10/00	15:09	CW	IPC	0.4721	0.456	9.338	0.5041	0.488	0.482	0.5035	4.836	9.668	0.488	9.973	0.473	0.487	0.478
8/10/00	16:08	CW	IPC	0.472	0.454	9.359	0.4981	0.487	0.482	0.4971	4.84	9.682	0.485	10.01	0.472	0.481	0.474
8/11/00	10:27	CW	IPC	0.4891	0.474	9.797	0.5043	0.507	0.499	0.5075	4.962	10.03	0.498	10.32	0.498	0.5	0.492
8/11/00	11:30	CW	IPC	0.4921	0.463	9.424	0.5077	0.495	0.502	0.5045	4.988	10.02	0.496	9.848	0.486	0.497	0.492
8/11/00	12:41	CW	IPC	0.4928	0.456	9.562	0.4982	0.501	0.503	0.4973	5.019	10.07	0.49	10.18	0.481	0.489	0.484
8/11/00	13:26	CW	IPC	0.4892	0.476	9.615	0.5239	0.504	0.502	0.5159	4.983	9.995	0.504	10.25	0.493	0.506	0.5
8/11/00	13:31	CW	IPC	0.4918	0.481	9.752	0.5213	0.506	0.504	0.5139	4.943	10.07	0.505	10.38	0.49	0.506	0.499
8/11/00	14:47	CW	IPC	0.4887	0.468	9.626	0.5114	0.505	0.501	0.5044	4.959	9.978	0.492	10.78	0.484	0.496	0.489

EPA Method 200.15 Instrument Performance Check Solutions by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
8/11/00	16:17	CW	IPC	0.4894	0.471	9.59	0.5145	0.505	0.504	0.5064	4.946	10.04	0.493	10.7	0.482	0.496	0.49
8/11/00	17:17	CW	IPC	0.4973	0.459	9.692	0.503	0.506	0.504	0.4921	4.966	10.12	0.484	10.56	0.472	0.484	0.479
8/11/00	17:45	CW	IPC	0.4922	0.468	9.6	0.5145	0.502	0.5	0.5066	4.942	10	0.494	10.51	0.484	0.497	0.49
9/20/00	10:49	CW	IPC	0.4905	0.471	9.594	0.4976	0.502	0.504	0.5048	4.95	10.02	0.495	10.3	0.486	0.499	0.493
9/20/00	12:18	CW	IPC	0.4808	0.46	9.419	0.488	0.498	0.497	0.5014	5.025	9.835	0.489	10.02	0.496	0.491	0.485
9/20/00	13:28	CW	IPC	0.4842	0.463	9.473	0.4892	0.5	0.499	0.5055	5.026	9.906	0.491	10.03	0.496	0.495	0.487
9/20/00	15:18	CW	IPC	0.4826	0.452	9.236	0.4863	0.492	0.498	0.5008	5.018	9.835	0.485	10.01	0.49	0.488	0.483
9/20/00	16:29	CW	IPC	0.4911	0.444	8.966	0.4892	0.482	0.501	0.489	4.965	9.936	0.479	10.1	0.467	0.476	0.479
9/21/00	12:05	CW	IPC	0.4872	0.469	9.733	0.4948	0.503	0.501	0.5061	4.962	9.926	0.494	10.39	0.496	0.497	0.49
9/21/00	13:02	CW	IPC	0.4852	0.462	9.702	0.4908	0.501	0.5	0.5062	4.948	9.858	0.491	10.01	0.496	0.495	0.486
9/21/00	14:23	CW	IPC	0.4816	0.469	9.738	0.4932	0.503	0.499	0.5137	4.994	9.857	0.497	10.01	0.512	0.503	0.49
9/21/00	16:13	CW	IPC	0.4812	0.461	9.749	0.4886	0.504	0.499	0.5098	4.989	9.826	0.491	10.03	0.515	0.497	0.485
9/25/00	11:36	CW	IPC	0.484	0.464	9.733	0.4933	0.505	0.498	0.5063	4.943	9.822	0.491	10.4	0.497	0.499	0.49
9/25/00	13:09	CW	IPC	0.4926	0.471	9.779	0.5003	0.501	0.503	0.507	4.973	9.992	0.497	10.25	0.489	0.503	0.496
9/25/00	12:29	CW	IPC	0.4807	0.461	9.562	0.4941	0.5	0.495	0.5103	4.967	9.728	0.49	10	0.5	0.501	0.49
9/25/00	13:58	CW	IPC	0.4931	0.472	9.77	0.5004	0.503	0.505	0.5075	5.009	10.04	0.498	10.31	0.489	0.501	0.496
9/25/00	15:12	CW	IPC	0.4955	0.473	9.837	0.4949	0.504	0.504	0.5021	4.981	10.07	0.496	10.25	0.481	0.496	0.492
9/25/00	16:11	CW	IPC	0.5022	0.479	9.953	0.5	0.508	0.51	0.5075	4.983	10.21	0.503	10.2	0.483	0.502	0.498
9/26/00	12:05	CW	IPC	0.4849	0.473	9.905	0.4896	0.509	0.494	0.5011	4.857	9.941	0.496	10.26	0.5	0.498	0.489
9/26/00	12:56	CW	IPC	0.4714	0.464	9.82	0.4897	0.5	0.487	0.5077	4.907	9.684	0.491	10.14	0.511	0.499	0.488
9/26/00	14:05	CW	IPC	0.4762	0.47	9.839	0.4888	0.504	0.487	0.5073	4.879	9.775	0.496	9.854	0.506	0.5	0.489
9/26/00	15:09	CW	IPC	0.4827	0.46	9.5	0.4913	0.496	0.492	0.4975	4.838	9.837	0.489	9.117	0.481	0.492	0.488
10/18/00	11:51	CW	IPC	0.4735	0.48	9.972	0.4957	0.51	0.493	0.508	4.984	9.918	0.498	10.41	0.514	0.509	0.492
10/18/00	13:15	CW	IPC	0.465	0.467	9.652	0.4978	0.5	0.493	0.5121	4.956	9.743	0.492	10.56	0.508	0.505	0.492
10/18/00	14:13	CW	IPC	0.4633	0.465	9.599	0.4945	0.499	0.49	0.5138	4.963	9.699	0.492	10.31	0.506	0.505	0.49
10/18/00	15:30	CW	IPC	0.4678	0.479	9.892	0.5042	0.513	0.493	0.5246	5.043	9.858	0.502	10.6	0.525	0.518	0.497
10/19/00	13:45	CW	IPC	0.483	0.469	9.676	0.4972	0.505	0.503	0.4972	4.994	10.11	0.49	10.44	0.485	0.494	0.487
10/19/00	14:37	CW	IPC	0.4863	0.47	9.727	0.4962	0.504	0.505	0.4952	5.016	10.19	0.491	10.62	0.488	0.494	0.487
10/19/00	15:46	CW	IPC	0.4581	0.459	9.556	0.4845	0.492	0.484	0.4977	4.939	9.645	0.481	10.28	0.495	0.49	0.476
10/20/00	11:24	CW	IPC	0.4838	0.471	9.929	0.496	0.509	0.502	0.4997	4.999	10.1	0.492	10.44	0.495	0.498	0.485

EPA Method 200.15 Instrument Performance Check Solutions by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
10/20/00	12:37	CW	IPC	0.4697	0.457	9.568	0.4848	0.489	0.487	0.4899	4.846	9.795	0.482	10.17	0.483	0.486	0.474	
10/20/00	13:35	CW	IPC	0.4809	0.457	9.451	0.4957	0.493	0.501	0.4971	4.963	9.99	0.487	10.15	0.48	0.491	0.482	
10/20/00	14:55	CW	IPC	0.4834	0.463	9.635	0.4966	0.499	0.504	0.5027	5.026	10.11	0.492	10.1	0.49	0.496	0.486	
10/20/00	15:56	CW	IPC	0.4945	0.453	9.325	0.5015	0.491	0.51	0.4937	4.998	10.24	0.487	10.03	0.452	0.487	0.483	
10/20/00	16:58	CW	IPC	0.4847	0.455	9.411	0.4915	0.492	0.5	0.4925	4.953	10.07	0.485	10.12	0.473	0.486	0.478	
10/26/00	11:37	CW	IPC	0.4837	0.473	9.876	0.4987	0.502	0.501	0.5023	4.993	10.07	0.494	10.4	0.497	0.5	0.491	
10/26/00	12:27	CW	IPC	0.4891	0.458	9.513	0.5045	0.491	0.509	0.4996	5.004	10.16	0.487	10.39	0.477	0.493	0.491	
10/26/00	13:24	CW	IPC	0.4953	0.466	9.464	0.5035	0.495	0.507	0.4985	5.048	10.22	0.492	9.894	0.484	0.494	0.492	
10/26/00	14:44	CW	IPC	0.4944	0.463	9.439	0.5117	0.49	0.506	0.499	5.122	10.19	0.495	8.167	0.479	0.496	0.492	
10/26/00	15:53	CW	IPC	0.502	0.446	9.171	0.5096	0.481	0.514	0.4958	5.252	10.26	0.487	5.386	0.45	0.489	0.484	
10/30/00	17:46	TMC	IPC	0.4835	0.48	9.939	0.5036	0.507	0.5	0.5071	4.984	10.09	0.499	9.987	0.498	0.507	0.495	
10/30/00	19:08	TMC	IPC	0.4834	0.486	10.03	0.5024	0.509	0.498	0.5102	5.004	10.11	0.504	10	0.501	0.511	0.497	
10/31/00	10:52	CW	IPC	0.4737	0.467	9.772	0.4946	0.502	0.496	0.5016	4.977	9.961	0.489	9.93	0.494	0.496	0.485	
10/31/00	12:40	CW	IPC	0.4704	0.476	9.953	0.4926	0.507	0.493	0.5018	4.9	9.91	0.494	9.866	0.499	0.5	0.485	
10/31/00	14:07	CW	IPC	0.4824	0.483	10.13	0.4977	0.51	0.501	0.4992	4.928	10.14	0.498	10.13	0.495	0.501	0.49	
12/1/00	11:02	CW	IPC	n/a	n/a	10.09	n/a	n/a	0.487	n/a	4.905	9.95	0.499	10.19	n/a	n/a	0.49	
12/1/00	11:51	CW	IPC	n/a	n/a	9.4	n/a	n/a	0.485	n/a	4.943	9.781	0.487	9.798	n/a	n/a	0.49	
12/1/00	12:49	CW	IPC	n/a	n/a	9.461	n/a	n/a	0.482	n/a	4.939	9.686	0.491	9.731	n/a	n/a	0.489	
				Average	0.48	0.47	9.69	0.50	0.50	0.52	0.51	4.97	10.0	0.50	10.1	0.49	0.50	0.49
				Standard Deviation	0.01	0.01	0.27	0.01	0.01	0.01	0.01	0.07	0.19	0.01	0.66	0.02	0.01	0.01
				N	75	75	78	75	75	78	75	78	78	78	75	75	78	
				Maximum	0.52	0.52	10.4	0.54	0.53	0.52	0.53	5.252	10.7	0.53	10.9	0.54	0.52	0.52
				Minimum	0.46	0.44	8.97	0.48	0.48	0.48	0.49	4.836	9.65	0.48	5.39	0.45	0.48	0.47
				Given Value	0.5	0.5	10	0.5	0.5	0.5	0.5	5	10	0.5	10	0.5	0.5	0.5

APPENDIX A – Water Resources

A.6 Metals QC Data

A.6.2 Bottle Blanks, Trip Blanks, Lab Reagent Blanks and Calibration Blanks

Bottle Blanks verify that the interior surfaces of sample bottles are free of contamination (below probable quantitative limit). The blank consists of a de-ionized water rinse of a bottle after bottles have been prepared for sample collection.

Trip Blanks measure potential sample contamination from the sample bottle, reagent water, preservation reagents, or contamination from preparing, preservation, handling or transporting the blank from the field to the laboratory and back. A trip blank was prepared by filling a sample bottle with de-ionized water. It was transported in the sample-shipping container to the field. The bottle cap was removed in the field and was exposed to the sampling environment for the length of time an actual sample would be open to the elements and then preserved. The bottle was capped and transported back to the lab where it was then analyzed.

Lab Reagent Blanks verify that the reagent water used in the preparation of standards and dilutions is free of contamination (below probable quantitative limit). It also verifies that autosampler vials and caps are free of contamination. Reagent water is prepared exactly as a sample as per EPA method 200.15 and analyzed.

Calibration Blanks are the blank solution used for standardization of the ICAP-ES. Calibration Blanks assess instrument or method performance over the duration of analysis.

Probable quantitative limits were determined by the analysis of the Instrument Performance Check solutions diluted to approximately three-times the Instrument Detection Limit, IDL, (standard deviation of seven exposures of calibration blank). Dilutions greater and less than the three-times IDL concentration were made and analyzed. Probable quantitative limits were defined as the diluted concentration in which the relative percent difference between the analytical value and the given value is nearly or less than ten percent.

EPA Method 200.15 Bottle Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
8/2/00	17:40	CW	Bottle Blank CAT-001	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
9/20/00	13:06	CW	Bottle Blank CAT-002	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
8/11/00	16:52	CW	Bottle Blank CAT-003	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0036	bpql	bpql	bpql	0.0025
10/31/00	13:33	CW	Bottle Blank CAT-004	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/31/00	13:37	CW	Bottle Blank CAT-005	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/31/00	13:41	CW	Bottle Blank CAT-006	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/31/00	13:45	CW	Bottle Blank CAT-007	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/31/00	13:48	CW	Bottle Blank CAT-008	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/31/00	13:52	CW	Bottle Blank CAT-009	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/20/00	15:08	CW	Bottle Blank CAT-010 (Trip Blank 093000)	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
9/25/00	13:14	CW	Bottle Blank CAT-011 (Trip Blank 082900)	bpql	bpql	0.022	bpql	bpql	0.0042	bpql	bpql	bpql	bpql	bpql	0.0206	bpql	0.0024
10/31/00	13:56	CW	Bottle Blank CAT-012	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
				# of runs	12	12	12	12	12	12	12	12	12	12	12	12	12
				# of runs above PQL	0	0	1	0	0	1	0	0	0	1	0	1	0
				Maximum value above PQL	N/A	N/A	0.022	N/A	N/A	0.004	N/A	N/A	N/A	0.0036	N/A	0.021	N/A

EPA Method 200.15 Trip Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001	
8/2/00	16:38	CW	TRIP BLANK 050100	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/10/00	15:53	CW	TRIP BLANK 071800	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/8/00	11:53	CW	TRIP BLANK 071000	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/8/00	12:08	CW	TRIP BLANK 071300	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/8/00	15:32	CW	TRIP BLANK 072400	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/7/00	14:14	CW	TRIP BLANK 062600	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/7/00	15:02	CW	TRIP BLANK 062700	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/4/00	15:02	CW	TRIP BLANK 061900	bpql	bpql	0.2745	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0166	
8/4/00	16:17	CW	TRIP BLANK 062000	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0012	
8/4/00	11:04	CW	TRIP BLANK 062800	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/4/00	12:48	CW	TRIP BLANK 062900	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/4/00	13:28	CW	TRIP BLANK 063000	bpql	bpql	0.0256	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0015	
8/11/00	12:33	CW	TRIP BLANK 071700	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/11/00	14:06	CW	TRIP BLANK 071900	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/11/00	16:41	CW	TRIP BLANK 072000	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
9/25/00	13:14	CW	TRIP BLANK 082900	bpql	bpql	0.022	bpql	bpql	0.0042	bpql	bpql	bpql	bpql	bpql	bpql	0.0206	bpql	0.0024
9/26/00	14:57	CW	TRIP BLANK 070700	bpql	bpql	0.0509	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
9/26/00	13:42	CW	TRIP BLANK 081400	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0022
9/26/00	12:37	CW	TRIP BLANK 082800	bpql	bpql	0.0222	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/18/00	13:36	CW	PREP BLANK 070700	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0017
10/18/00	13:32	CW	TRIP BLANK 083000	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0011
10/18/00	15:11	CW	TRIP BLANK 100100	bpql	bpql	0.0559	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0007	bpql	bpql	bpql	bpql
10/20/00	15:08	CW	TRIP BLANK 093000	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
				# of runs	23	23	23	23	23	23	23	23	23	23	23	23	23	
				# of runs above PQL	0	0	6	0	0	1	0	0	0	1	0	1	0	7
				Maximum value above PQL	N/A	N/A	0.2745	N/A	N/A	0.004	N/A	N/A	N/A	0.0007	N/A	0.021	N/A	0.017

EPA Method 200.15 Laboratory Reagent Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001	
8/2/00	17:35	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0022	
8/10/00	16:25	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/8/00	17:16	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.001	
8/7/00	17:06	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
8/4/00	16:51	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0014	
8/11/00	17:49	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0011	
8/11/00	13:03	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0018	
9/25/00	14:14	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
9/25/00	16:23	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
9/20/00	16:39	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
9/20/00	13:44	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
9/21/00	15:06	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	0.0151	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
9/21/00	16:40	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/30/00	19:04	TMC	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/18/00	14:41	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/26/00	13:54	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	14:06	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	16:09	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	17:11	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/19/00	14:56	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
9/26/00	14:19	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
9/26/00	15:23	CW	LAB REAGENT BLANK	bpql	bpql	0.0306	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/31/00	11:25	CW	LAB REAGENT BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/31/00	14:38	CW	LAB REAGENT BLANK	bpql	bpql	0.0344	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
12/1/00	12:11	TMC	LAB REAGENT BLANK	n/a	n/a	bpql	n/a	0.0141	n/a	bpql	bpql	bpql	bpql	bpql	n/a	n/a	bpql	
				# of runs	24	24	25	24	24	25	24	25	25	25	25	24	24	25
				# of runs above PQL	0	0	2	0	0	1	1	0	0	0	0	0	0	5
				Maximum value above PQL	n/a	n/a	0.034	n/a	n/a	0.014	0.015	n/a	n/a	n/a	n/a	n/a	n/a	0.002
<i>bpql = below the probable quantitative limit</i>																		

EPA Method 200.15 Calibration Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
8/2/00	15:30	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/2/00	17:02	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/2/00	18:09	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/4/00	10:58	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/4/00	11:41	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/4/00	11:47	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/4/00	12:52	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/4/00	13:47	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/4/00	15:27	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/4/00	16:28	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/4/00	16:54	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/7/00	11:38	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/7/00	13:16	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/7/00	14:22	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/7/00	15:24	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/7/00	15:36	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/7/00	16:55	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/8/00	12:27	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/8/00	14:40	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/8/00	15:47	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/8/00	16:38	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/8/00	17:08	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/10/00	14:00	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/10/00	15:06	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/10/00	16:04	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/10/00	16:29	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/11/00	10:31	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/11/00	11:19	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/11/00	13:13	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						

EPA Method 200.15 Calibration Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
8/11/00	14:43	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/11/00	16:13	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/11/00	17:14	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/11/00	17:41	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
8/11/00	17:53	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/20/00	12:14	CW	CAL BLANK	bpql	bpql	bpql	0.0022	bpql	bpql	bpql	bpql						
9/20/00	13:24	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/20/00	13:49	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/20/00	15:15	CW	CAL BLANK	bpql	bpql	bpql	0.002	bpql	bpql	bpql	bpql						
9/20/00	16:20	CW	CAL BLANK	bpql	bpql	bpql	0.0007	bpql	bpql	bpql	bpql						
9/21/00	12:59	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/21/00	14:19	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/21/00	15:15	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/21/00	16:09	CW	CAL BLANK	bpql	bpql	0.0505	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0011
9/25/00	12:25	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/25/00	13:54	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/25/00	14:19	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/25/00	15:08	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/25/00	16:07	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/26/00	12:52	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/26/00	14:01	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/26/00	14:23	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
9/26/00	15:05	CW	CAL BLANK	bpql	bpql	0.0554	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/18/00	13:11	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	0.0036	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0019
10/18/00	14:09	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
10/18/00	14:32	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
10/18/00	15:26	CW	CAL BLANK	bpql	bpql	0.0343	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql
10/19/00	14:33	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						
10/19/00	15:42	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql						

EPA Method 200.15 Calibration Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001	
10/19/00	16:13	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	12:33	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	13:31	CW	CAL BLANK	0.0141	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	13:57	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	14:51	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	15:52	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/20/00	16:54	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/26/00	12:23	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/26/00	13:20	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/26/00	13:44	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/26/00	15:04	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/30/00	18:45	TMC	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/31/00	11:21	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/31/00	12:36	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
10/31/00	12:56	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	0.0005	bpql	bpql	bpql	
10/31/00	14:03	CW	CAL BLANK	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	bpql	
12/1/00	11:47	CW	CAL BLANK	n/a	n/a	bpql	n/a	n/a	bpql	n/a	bpql	0.0007	bpql	n/a	n/a	n/a	bpql	
12/1/00	12:46	CW	CAL BLANK	n/a	n/a	bpql	n/a	n/a	bpql	n/a	bpql	bpql	n/a	n/a	n/a	n/a	bpql	
				# of runs	74	74	76	74	74	76	74	76	76	76	74	74	76	
				# of runs above PQL	1	0	1	0	0	1	0	0	0	5	0	0	0	2
				Maximum value above PQL	0.0141	n/a	0.055	n/a	n/a	0.004	n/a	n/a	0.002	n/a	n/a	n/a	n/a	0.002
<i>bpql = below the probable quantitative limit</i>																		

APPENDIX A – Water Resources

A.6 Metals QC Data

A.6.3 Field Duplicates and Splits and Laboratory Duplicates

Field duplicates are samples collected identically and consecutively over a minimum period of time. They provide a measure of the total field sampling and laboratory analytical precision, including that resulting from the heterogeneity of the medium being sampled.

Field Splits are randomly chosen samples that have been collected into a sample bottle and then "split" by pouring half the sample into another sample bottle. They provide a measure of the heterogeneity of the medium being sampled.

Laboratory Duplicates are random samples analyzed twice, non-consecutively, in order to assess instrument performance over the duration of analysis.

Percent difference of duplicates samples are calculated by dividing the absolute value of the difference between the original and the duplicate sample by the average value of the two samples. We then multiply this value by 100 to obtain percent units.

EPA Method 200.15 Field Duplicates by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
MW-5 050100	0.26	0.007	73	bpql	bpql	0.003	0.181	3.5	29	0.030	12	0.15	bpql	0.009
MW-5 050100 Field Dup	0.28	bpql	72	bpql	bpql	0.003	0.181	3.5	28	0.034	13	0.16	bpql	0.006
% difference	7%	N/A	1%	N/A	N/A	0%	0%	0%	4%	12%	8%	6%	N/A	40%
GKM-3RED 061900	0.11	0.009	84	bpql	bpql	bpql	0.147	6.6	16	0.027	23	0.04	bpql	0.140
GKM-3RED 061900 Field Dup	0.02	0.011	84	bpql	bpql	bpql	0.049	6.5	16	0.020	23	0.03	bpql	0.164
% difference	138%	20%	0%	N/A	N/A	N/A	100%	2%	0%	26%	0%	29%	N/A	15%
MLS-5RED 062000	0.01	0.006	63	bpql	bpql	bpql	0.030	3.6	25	0.043	13	0.03	bpql	0.002
MLS-5RED 062000 Field Dup	0.02	0.005	63	bpql	bpql	bpql	0.036	3.7	25	0.039	13	0.03	bpql	0.001
% difference	67%	18%	0%	N/A	N/A	N/A	17%	3%	0%	10%	0%	0%	N/A	67%
GKM-7BLUE 062600	0.06	0.084	67	0.011	bpql	0.033	0.066	3.7	19	3.19	17	0.02	bpql	1.11
GKM-7BLUE 062600 Field Dup	0.03	0.084	69	0.013	bpql	0.035	0.044	3.8	19	3.16	17	0.02	bpql	1.10
% difference	67%	0%	3%	17%	N/A	6%	40%	3%	0%	1%	0%	0%	N/A	1%
MLS-3RED 062700	0.11	0.096	110	0.002	bpql	0.007	0.332	34	59	2.30	70	0.30	bpql	0.005
MLS-3RED 062700 Field Dup	0.04	0.041	85	bpql	bpql	0.020	0.063	19	36	0.662	52	0.16	bpql	0.003
% difference	93%	80%	26%	N/A	N/A	186%	136%	57%	48%	247%	30%	88%	N/A	50%
GKW-4 062800	bpql	0.015	75	bpql	bpql	bpql	0.040	6.8	12	0.007	25	0.08	bpql	0.003
GKW-4 062800 Field Dup	bpql	0.016	75	bpql	bpql	0.006	0.028	6.9	12	0.004	25	0.08	bpql	0.003
% difference	N/A	6%	0%	N/A	N/A	N/A	43%	1%	0%	55%	0%	0%	N/A	0%
GKW-8 062900	0.01	bpql	43	bpql	bpql	bpql	0.068	5.1	8.8	0.078	12	0.02	bpql	0.002
GKW-8 062900 Field Dup	0.01	bpql	43	bpql	bpql	bpql	0.060	5.1	8.8	0.083	12	0.02	bpql	0.003
% difference	0%	N/A	0%	N/A	N/A	N/A	12%	0%	0%	6%	0%	0%	N/A	40%

EPA Method 200.15 Field Duplicates by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
MW-4 063000	0.03	bpql	79	bpql	bpql	0.004	0.025	4.2	27	0.014	28	0.05	bpql	0.002
MW-4 063000 Field Dup	bpql	bpql	79	bpql	bpql	0.023	0.023	4.2	27	0.013	28	0.05	bpql	0.002
% difference	N/A	N/A	0%	N/A	N/A	N/A	8%	0%	7%	0%	0%	0%	N/A	0%
SW-4 070700	bpql	0.279	96	0.007	bpql	0.124	0.145	23	27	0.15	26	0.51	bpql	0.148
SW-4 070700 Field Dup	bpql	0.26	99	0.006	bpql	0.079	0.136	21	25	0.093	25	0.49	bpql	0.167
% difference	N/A	7%	3%	15%	N/A	44%	6%	9%	8%	47%	4%	4%	N/A	12%
GKM-2W 071700	bpql	bpql	33	bpql	bpql	bpql	0.035	6.5	5.8	0.010	27	0.03	bpql	0.003
GKM-2W 071700 Field Dup	bpql	bpql	32	bpql	bpql	bpql	0.038	6.4	5.5	0.007	26	0.02	bpql	0.004
% difference	N/A	N/A	3%	N/A	N/A	N/A	8%	2%	5%	43%	4%	40%	N/A	29%
MW-5 071800	bpql	bpql	67	bpql	bpql	bpql	0.020	3.8	27	0.004	13	0.04	bpql	0.002
MW-5 071800 Field Dup	bpql	0.005	67	bpql	bpql	bpql	0.020	3.8	27	0.001	12	0.04	bpql	0.002
% difference	N/A	N/A	0%	N/A	N/A	N/A	0%	0%	120%	8%	0%	N/A	0%	
GKW-7 072000	0.04	bpql	44	bpql	bpql	bpql	0.161	1.6	12	0.367	19	0.01	bpql	0.002
GKW-7 072000 Field Dup	0.05	bpql	46	bpql	bpql	0.003	0.170	1.7	12	0.373	20	0.01	bpql	0.003
% difference	22%	N/A	4%	N/A	N/A	N/A	6%	6%	0%	2%	5%	0%	N/A	40%
GKW-9 072400	0.02	bpql	86	bpql	bpql	0.005	0.162	7.7	30	0.362	25	0.03	bpql	0.003
GKW-9 072400 Field Dup	0.02	bpql	89	bpql	bpql	0.004	0.127	7.7	30	0.360	25	0.03	bpql	0.006
% difference	0%	N/A	3%	N/A	N/A	22%	24%	0%	0%	1%	0%	0%	N/A	67%
MW-4 082800	bpql	bpql	80	bpql	bpql	bpql	0.032	4.5	27	0.029	26	0.06	bpql	0.002
MW-4 082800 Field Dup	bpql	bpql	78	bpql	bpql	bpql	0.027	4.4	27	0.036	27	0.05	bpql	0.001
% difference	N/A	N/A	3%	N/A	N/A	N/A	17%	2%	0%	22%	4%	18%	N/A	67%

EPA Method 200.15 Field Duplicates by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
GKW-9 082900	bpql	bpql	81	bpql	bpql	bpql	0.22	6.4	26	0.282	21	0.02	bpql	0.003
GKW-9 082900 Field Dup	bpql	bpql	82	bpql	bpql	bpql	0.186	6.4	26	0.28	21	0.02	bpql	0.002
% difference	N/A	N/A	1%	N/A	N/A	N/A	17%	0%	0%	1%	0%	0%	N/A	40%
GKW-2 083000	bpql	0.006	74	bpql	bpql	0.007	0.038	8.4	13	0.013	28	0.05	bpql	0.003
GKW-2 083000 Field Dup	bpql	0.006	71	bpql	bpql	0.004	0.034	8.2	13	0.009	29	0.05	bpql	0.003
% difference	N/A	0%	4%	N/A	N/A	55%	11%	2%	0%	36%	4%	0%	N/A	0%
GKW-8 092900	0.02	bpql	41	bpql	bpql	bpql	0.032	5.4	8.4	0.012	12	0.02	bpql	0.002
GKW-8 092900 Field Dup	0.01	bpql	41	bpql	bpql	bpql	0.032	5.5	8.4	0.007	12	0.02	bpql	0.001
% difference	67%	N/A	0%	N/A	N/A	N/A	0%	2%	0%	53%	0%	0%	N/A	67%
GKW-1 093000	0.03	bpql	59	bpql	bpql	bpql	0.038	6.5	12	0.036	24	0.03	bpql	0.003
GKW-1 093000 Field Dup	0.02	bpql	59	bpql	bpql	bpql	0.035	6.4	12	0.033	23	0.02	bpql	0.002
% difference	40%	N/A	0%	N/A	N/A	N/A	8%	2%	0%	9%	4%	40%	N/A	40%
MW-4 100100	bpql	bpql	81	bpql	bpql	bpql	0.03	4.6	28	0.103	26	0.05	bpql	0.002
MW-4 100100 Field Dup	bpql	bpql	79	bpql	bpql	bpql	0.03	4.7	28	0.088	27	0.05	bpql	0.002
% difference	N/A	N/A	3%	N/A	N/A	N/A	0%	2%	0%	16%	4%	0%	N/A	0%
<i>bpql = below the probable quantitative limit</i>														

EPA Method 200.15 Field Splits by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
MW-5 050100	0.26	0.007	73	bpql	bpql	0.003	0.181	3.5	29	0.030	12	0.15	bpql	0.009
MW-5 050100 Split	0.24	0.005	72	bpql	bpql	0.005	0.162	3.5	28	0.027	13	0.14	bpql	0.008
% difference	8%	33%	1%	N/A	N/A	50%	11%	0%	4%	11%	8%	7%	N/A	12%
GKM-3RED 061900	0.11	0.009	84	bpql	bpql	bpql	0.147	6.6	16	0.027	23	0.04	bpql	0.140
GKM-3RED 061900 Split	0.07	0.010	85	bpql	bpql	bpql	0.102	6.6	16	0.027	23	0.04	bpql	0.141
% difference	44%	11%	1%	N/A	N/A	N/A	36%	0%	0%	0%	0%	0%	N/A	1%
MLS-5RED 062000	0.01	0.006	63	bpql	bpql	bpql	0.030	3.6	25	0.043	13	0.03	bpql	0.002
MLS-5RED 062000 Split	0.01	0.006	65	bpql	bpql	bpql	0.031	3.6	25	0.045	13	0.03	bpql	0.003
% difference	0%	0%	3%	N/A	N/A	N/A	3%	0%	0%	5%	0%	0%	N/A	40%
GKM-7BLUE 062600	0.06	0.084	67	0.011	bpql	0.033	0.066	3.7	19	3.19	17	0.02	bpql	1.11
GKM-7BLUE 062600 Split	0.06	0.083	66	0.011	bpql	0.033	0.065	3.7	19	3.14	17	0.02	bpql	1.10
% difference	0%	1%	2%	0%	N/A	0%	2%	0%	0%	2%	0%	0%	N/A	1%
MLS-3RED 062700	0.11	0.096	110	0.002	bpql	0.007	0.332	34	59	2.30	70	0.30	bpql	0.005
MLS-3RED 062700 Split	0.11	0.096	110	0.002	bpql	0.006	0.318	34	59	2.30	71	0.29	bpql	0.004
% difference	0%	0%	0%	0%	N/A	15%	4%	0%	0%	N/A	1%	3%	N/A	22%
GKW-8 062900	0.01	bpql	43	bpql	bpql	bpql	0.068	5.1	8.8	0.078	12	0.02	bpql	0.002
GKW-8 062900 Split	0.02	bpql	42	bpql	bpql	bpql	0.066	5.1	8.6	0.076	12	0.02	bpql	0.002
% difference	67%	N/A	2%	N/A	N/A	N/A	3%	0%	2%	3%	0%	0%	N/A	0%
MW-4 063000	0.03	bpql	79	bpql	bpql	0.004	0.025	4.2	27	0.014	28	0.05	bpql	0.002
MW-4 063000 Split	bpql	bpql	79	bpql	bpql	0.022	4.2	27	0.014	27	0.05	bpql	0.002	
% difference	N/A	N/A	0%	N/A	N/A	13%	0%	0%	0%	4%	0%	N/A	0%	
GKM-2W 071700	bpql	bpql	33	bpql	bpql	bpql	0.035	6.5	5.8	0.010	27	0.03	bpql	0.003
GKM-2W 071700 Split	bpql	bpql	33	bpql	bpql	bpql	0.036	6.6	5.8	0.010	26	0.03	bpql	0.003
% difference	N/A	N/A	0%	N/A	N/A	N/A	3%	2%	0%	N/A	4%	0%	N/A	0%

EPA Method 200.15 Field Splits by ICAP-ES

Sample Name		Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
Probable Quantitative Limit		0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001	
MW-5 071800	bpql	bpql	67	bpql	bpql	bpql	0.020	3.8	27	0.004	13	0.04	bpql	0.002		
MW-5 071800 Split	bpql	bpql	68	bpql	bpql	bpql	0.018	3.8	27	0.004	12	0.04	bpql	0.002		
% difference	N/A	N/A	1%	N/A	N/A	N/A	11%	0%	0%	0%	8%	0%	N/A	0%		
GKW-4 071900	bpql	0.015	69	bpql	bpql	bpql	0.038	6.5	11	0.004	22	0.08	bpql	0.002		
GKW-4 071900 Split	bpql	0.016	68	bpql	bpql	bpql	0.027	6.5	11	0.004	22	0.08	bpql	0.003		
% difference	N/A	6%	1%	N/A	N/A	N/A	34%	0%	0%	0%	0%	0%	N/A	40%		
GKW-7 072000	0.04	bpql	44	bpql	bpql	bpql	0.161	1.6	12	0.367	19	0.01	bpql	0.002		
GKW-7 072000 Split	0.03	bpql	46	bpql	bpql	bpql	0.161	1.7	12	0.385	20	0.01	bpql	0.003		
% difference	29%	N/A	4%	N/A	N/A	N/A	0%	6%	0%	5%	5%	0%	N/A	40%		
GKW-9 072400	0.02	bpql	86	bpql	bpql	bpql	0.005	0.162	7.7	30	0.362	25	0.03	bpql	0.003	
GKW-9 072400 Split	0.01	bpql	86	bpql	bpql	bpql	0.006	0.131	7.7	31	0.370	25	0.03	bpql	0.006	
% difference	67%	N/A	0%	N/A	N/A	N/A	18%	21%	0%	3%	2%	0%	0%	N/A	67%	
MW-4 082800	bpql	bpql	80	bpql	bpql	bpql	0.032	4.5	27	0.029	26	0.06	bpql	0.002		
MW-4 082800 Split	bpql	bpql	78	bpql	bpql	bpql	0.027	4.4	26	0.029	26	0.05	bpql	0.002		
% difference	N/A	N/A	3%	N/A	N/A	N/A	17%	2%	4%	0%	0%	18%	N/A	0%		
GKW-9 082900	bpql	bpql	81	bpql	bpql	bpql	0.22	6.4	26	0.282	21	0.02	bpql	0.003		
GKW-9 082900 Split	bpql	bpql	83	bpql	bpql	bpql	0.003	0.221	6.4	26	0.284	21	0.02	bpql	0.003	
% difference	N/A	N/A	2%	N/A	N/A	N/A	0%	0%	0%	1%	0%	0%	N/A	0%		
GKW-2 083000	bpql	0.006	74	bpql	bpql	bpql	0.007	0.038	8.4	13	0.013	28	0.05	bpql	0.003	
GKW-2 083000 Split	bpql	0.007	72	bpql	bpql	bpql	0.033	0.033	8.1	13	0.012	28	0.05	bpql	0.003	
% difference	N/A	15%	3%	N/A	N/A	N/A	14%	4%	0%	8%	0%	0%	N/A	0%		
GKW-8 092900	0.02	bpql	41	bpql	bpql	bpql	0.032	5.4	8.4	0.012	12	0.02	bpql	0.002		
GKW-8 092900 Split	0.02	bpql	30	bpql	bpql	bpql	0.021	3.9	6	0.009	9	0.02	bpql	0.001		
% difference	0%	N/A	31%	N/A	N/A	N/A	42%	32%	33%	29%	29%	0%	N/A	67%		

EPA Method 200.15 Field Splits by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
GKW-1 093000	0.03	bpql	59	bpql	bpql	bpql	0.038	6.5	12	0.036	24	0.03	bpql	0.003
GKW-1 093000 Split	0.02	bpql	60	bpql	bpql	bpql	0.033	6.7	12	0.037	24	0.03	bpql	0.003
% difference	40%	N/A	2%	N/A	N/A	N/A	14%	3%	0%	3%	0%	0%	N/A	0%
MW-4 100100	bpql	bpql	81	bpql	bpql	bpql	0.03	4.6	28	0.103	26	0.05	bpql	0.002
MW-4 100100 Split	bpql	bpql	78	bpql	bpql	bpql	0.03	4.6	28	0.1	26	0.05	bpql	0.002
% difference	N/A	N/A	4%	N/A	N/A	N/A	0%	0%	0%	3%	0%	0%	N/A	0%
<i>bpql = below the probable quantitative limit</i>														

EPA Method 200.15 Lab Duplicates by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
8/2/00	16:12	CW	MW-1 050100	bpql	bpql	80.72	bpql	bpql	bpql	0.0135	2.617	31.2	0.0018	24.3	0.0677	bpql	0.0059
8/2/00	17:05	CW	MW-1 050100 Lab Dup	bpql	bpql	81.62	bpql	bpql	bpql	0.014	2.577	31.17	0.0019	25.58	0.067	bpql	0.0019
			% difference of dups	N/A	N/A	1%	N/A	N/A	N/A	4%	2%	0%	5%	5%	1%	N/A	103%
8/2/00	17:10	CW	SW-1 060100	bpql	0.3406	311.6	0.0079	bpql	0.4102	0.103	234.3	156.8	0.6022	386.5	1.562	0.0149	0.0328
8/2/00	18:04	CW	SW-1 060100 Lab Dup	bpql	0.3287	303.7	0.0077	bpql	0.4057	0.0988	226.8	156.8	0.5802	372	1.481	0.0158	0.0316
			% difference of dups	N/A	4%	3%	3%	N/A	1%	4%	3%	0%	4%	4%	5%	6%	4%
8/4/00	13:54	CW	GKM-1GREEN 061900	0.0512	bpql	84.98	bpql	bpql	bpql	0.1916	5.303	25.75	9.481	26.64	0.0169	bpql	0.0116
8/4/00	15:31	CW	GKM-1GREEN 061900 Lab Dup	0.0493	bpql	86.7	bpql	bpql	bpql	0.1909	5.339	26.12	9.625	26.93	0.0165	bpql	0.0117
			% difference of dups	4%	N/A	2%	N/A	N/A	N/A	0%	1%	1%	2%	1%	2%	N/A	1%
8/4/00	15:35	CW	GKM-5BLUE 061900	0.0707	bpql	70.63	0.0035	bpql	0.0303	0.0791	4.652	15.33	1.046	16.93	0.0146	bpql	0.2488
8/4/00	16:32	CW	GKM-5BLUE 061900 Lab Dup	0.056	bpql	68.031	0.0035	bpql	0.0298	0.0698	4.6523	15.101	1.02362	16.777	0.0129	bpql	0.2447
			% difference of dups	23%	N/A	4%	1%	N/A	2%	13%	0%	2%	2%	1%	12%	N/A	2%
8/4/00	11:07	CW	GKW-4 062800	bpql	0.0153	75.05	bpql	bpql	bpql	0.0398	6.841	11.84	0.0065	25.35	0.0798	bpql	0.003
8/4/00	11:51	CW	GKW-4 062800 Lab Dup	bpql	0.0144	75.26	bpql	bpql	bpql	0.039	6.853	12.03	0.0066	24.08	0.0767	bpql	0.003
			% difference of dups	N/A	6%	0%	N/A	N/A	N/A	2%	0%	2%	2%	5%	4%	N/A	0%
8/4/00	12:04	CW	GKW-8 062900 FD	0.0119	bpql	42.91	bpql	bpql	bpql	0.0597	5.061	8.778	0.0826	11.59	0.0226	bpql	0.0025
8/4/00	12:55	CW	GKW-8 062900 FD Lab Dup	0.0121	bpql	42.68	bpql	bpql	bpql	0.0586	5.06	8.755	0.0802	11.94	0.0208	bpql	0.0023
			% difference of dups	2%	N/A	1%	N/A	N/A	N/A	2%	0%	3%	3%	8%	N/A	8%	
8/4/00	13:14	CW	MW-2 063000	0.0305	bpql	81.47	bpql	bpql	bpql	0.0459	2.236	30.32	0.0054	16.27	0.0688	bpql	0.0025
8/4/00	13:51	CW	MW-2 063000 Lab Dup	0.0334	bpql	82.81	bpql	bpql	bpql	0.0449	2.229	30.72	0.004	16.32	0.0687	bpql	0.0019
			% difference of dups	9%	N/A	2%	N/A	N/A	N/A	2%	0%	1%	30%	0%	0%	N/A	27%

EPA Method 200.15 Lab Duplicates by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
8/7/00	14:07	CW	GKM-7BLUE 062600	0.063	0.0844	67.32	0.0114	bpql	0.0334	0.0662	3.688	19.42	3.194	16.75	0.0247	bpql	1.112
8/7/00	14:26	CW	GKM-7BLUE 062600 Lab Dup	0.0648	0.085	68.55	0.0115	bpql	0.0343	0.0668	3.702	19.75	3.232	17.14	0.0233	bpql	1.119
			% difference of dups	3%	1%	2%	1%	N/A	3%	1%	0%	2%	1%	2%	6%	N/A	1%
8/7/00	12:50	CW	GKM-9GREEN 062600	bpql	0.0395	69.12	bpql	bpql	bpql	1.845	6.08	17.89	0.8699	22.93	0.0474	bpql	0.008
8/7/00	13:19	CW	GKM-9GREEN 062600 Lab Dup	bpql	0.0412	70.07	bpql	bpql	bpql	1.874	6.093	18.04	0.8887	23.03	0.0463	bpql	0.008
			% difference of dups	N/A	4%	1%	N/A	N/A	N/A	2%	0%	1%	2%	0%	2%	N/A	0%
8/8/00	15:25	CW	GKM-7BLUE 072400	0.1043	0.1114	65.22	0.0053	bpql	0.0407	0.2088	3.383	18.41	2.365	16.97	0.0524	bpql	0.609
8/8/00	15:51	CW	GKM-7BLUE 072400 Lab Dup	0.0707	0.1092	65.58	0.0053	bpql	0.0403	0.1828	3.358	18.5	2.347	17.45	0.0528	bpql	0.6029
			% difference of dups	38%	2%	1%	0%	N/A	1%	13%	1%	0%	1%	3%	1%	N/A	1%
8/8/00	16:19	CW	GKM-7W 072400	bpql	0.014	60.5	bpql	bpql	bpql	3.472	2.603	16.82	0.6694	16.32	0.0819	bpql	0.0053
8/8/00	16:42	CW	GKM-7W 072400 Lab Dup	bpql	0.0127	60.58	bpql	bpql	0.0031	3.442	2.645	16.91	0.6658	16.57	0.0823	bpql	0.0061
			% difference of dups	N/A	10%	0%	N/A	N/A	N/A	1%	2%	1%	1%	2%	0%	N/A	14%
8/8/00	14:18	CW	MLS-3RED 072000	0.0856	0.0161	62.61	bpql	bpql	0.006	0.1807	14.35	22.6	0.7975	26.73	0.18	bpql	0.0042
8/8/00	14:44	CW	MLS-3RED 072000 Lab Dup	0.0859	0.0165	62.04	bpql	bpql	0.0046	0.1826	14.34	22.61	0.8009	26.36	0.1789	bpql	0.0035
			% difference of dups	0%	2%	1%	N/A	N/A	26%	1%	0%	0%	1%	1%	1%	N/A	18%
8/10/00	13:23	CW	GKM-3GREEN 071700	bpql	0.0088	85.52	bpql	bpql	bpql	0.0352	6.946	16.09	0.0152	23.54	0.018	bpql	0.0944
8/10/00	13:57	CW	GKM-3GREEN 071700 Lab Dup	bpql	0.0087	85.68	bpql	bpql	bpql	0.0345	6.978	16.36	0.015	23.35	0.0192	bpql	0.0932
			% difference of dups	N/A	1%	0%	N/A	N/A	2%	0%	2%	1%	1%	6%	N/A	1%	
8/10/00	14:04	CW	LYSVD-1 071700	bpql	0.019	92.73	bpql	bpql	0.0094	0.0286	3.317	31.65	0.0272	88.97	0.0371	bpql	0.0057
8/10/00	15:02	CW	LYSVD-1 071700 Lab Dup	bpql	0.0209	92.22	bpql	bpql	0.0085	0.0289	3.341	31.52	0.0275	84.69	0.0375	bpql	0.0058
			% difference of dups	N/A	10%	1%	N/A	N/A	10%	1%	1%	0%	1%	5%	1%	N/A	2%

EPA Method 200.15 Lab Duplicates by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	ICAP-ES Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
8/10/00	15:23	CW	MW-4 071800	0.0139	bpql	76.21	bpql	bpql	bpql	0.0266	4.254	25.87	0.0304	26.22	0.0503	bpql	0.0021
8/10/00	16:00	CW	MW-4 071800 Lab Dup	0.013	bpql	74.51	bpql	bpql	bpql	0.0261	4.24	25.41	0.0301	25.81	0.0506	bpql	0.0019
			% difference of dups	7%	N/A	2%	N/A	N/A	N/A	2%	0%	2%	1%	2%	1%	N/A	10%
8/11/00	11:23	CW	GKM-1RED 071700	bpql	0.011	75.73	bpql	bpql	bpql	0.0295	5.195	14.25	0.0051	17.16	0.057	bpql	0.0023
8/11/00	12:37	CW	GKM-1RED 071700 Lab Dup	bpql	0.0104	75.07	bpql	bpql	bpql	0.0293	5.302	14.31	0.0051	16.67	0.0576	bpql	0.0022
			% difference of duplicates	N/A	6%	1%	N/A	N/A	N/A	1%	2%	0%	3%	1%	N/A	N/A	4%
8/11/00	16:33	CW	GKM-3W 071900	0.0157	0.0057	80.86	0.0013	bpql	0.0031	0.0477	7.16	15.19	0.1508	22.26	0.0213	bpql	0.0833
8/11/00	17:10	CW	GKM-3W 071900 Lab Dup	0.0177	0.0052	81.17	0.0014	bpql	0.0033	0.0483	7.2	15.39	0.1545	22.96	0.0221	bpql	0.0838
			% difference of duplicates	12%	9%	0%	7%	N/A	6%	1%	1%	2%	3%	4%	N/A	N/A	1%
8/11/00	15:47	CW	GKM-4RED 072000	bpql	bpql	81.57	bpql	bpql	0.0065	0.0583	5.575	21.2	0.0078	29.48	0.0469	bpql	0.0131
8/11/00	16:09	CW	GKM-4RED 072000 Lab Dup	bpql	bpql	80.58	bpql	bpql	0.0068	0.0567	5.626	21.3	0.0077	29.41	0.0461	bpql	0.0125
			% difference of duplicates	N/A	N/A	1%	N/A	N/A	5%	3%	1%	0%	1%	0%	2%	N/A	5%
8/11/00	13:55	CW	GKW-3 071900	0.0245	0.0135	83.73	bpql	bpql	bpql	0.056	6.666	15.83	0.2274	22.71	0.1632	bpql	0.0022
8/11/00	14:25	CW	GKW-3 071900 Lab Dup	0.0322	0.015	85.15	bpql	bpql	bpql	0.0595	6.634	15.94	0.2301	21.71	0.1668	bpql	0.0025
			% difference of duplicates	27%	11%	2%	N/A	N/A	N/A	6%	0%	1%	1%	5%	2%	N/A	13%
8/11/00	17:30	CW	GKW-8 071900	0.0108	bpql	41.53	bpql	bpql	bpql	0.0369	5.181	8.527	0.0202	12.18	0.0231	bpql	0.0022
8/11/00	17:37	CW	GKW-8 071900 Lab Dup	0.0102	bpql	41.34	bpql	bpql	bpql	0.037	5.124	8.498	0.0201	12.17	0.0228	bpql	0.0022
			% difference of duplicates	6%	N/A	0%	N/A	N/A	N/A	0%	1%	0%	0%	1%	N/A	N/A	0%
8/11/00	10:46	CW	MLS-5GREEN 071800	0.0138	0.0084	80.74	bpql	bpql	bpql	0.0314	4.373	33.8	0.1526	17.89	0.0347	bpql	0.0027
8/11/00	11:15	CW	MLS-5GREEN 071800 Lab Dup	0.0132	0.0087	79.68	bpql	bpql	bpql	0.0318	4.356	33.61	0.1537	17.78	0.0346	bpql	0.003
			% difference of duplicates	4%	4%	1%	N/A	N/A	N/A	1%	0%	1%	1%	1%	0%	N/A	11%

EPA Method 200.15 Lab Duplicates by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001	
9/20/00	13:10	CW	GKM-6W 072400	bpql	bpql	37.33	bpql	bpql	bpql	3.674	4.216	7.97	0.4259	17.39	0.0672	bpql	0.0011	
9/20/00	13:21	CW	GKM-6W 072400 Lab Dup	bpql	bpql	37.86	bpql	bpql	bpql	3.737	4.241	8.005	0.4338	17.44	0.0697	bpql	0.0011	
			% difference of duplicates	N/A	N/A	1%	N/A	N/A	N/A	2%	1%	0%	2%	0%	4%	N/A	0%	
9/20/00	11:33	CW	SiO2 Flour Lot #1 063000	bpql	bpql	0.7705	bpql	bpql	bpql	bpql	bpql	0.134	0.003	bpql	bpql	bpql	0.0049	
9/20/00	12:11	CW	SiO2 Flour Lot #1 063000 Lab Dup	bpql	bpql	0.7605	bpql	bpql	bpql	bpql	bpql	0.1364	0.0031	bpql	bpql	bpql	0.0048	
			% difference of duplicates	N/A	N/A	1%	N/A	N/A	N/A	N/A	N/A	2%	3%	N/A	N/A	N/A	2%	
9/20/00	14:49	CW	SW-1 060100 1/50 dil	bpql	bpql	7.161	bpql	bpql	bpql	0.0063	bpql	5.017	2.696	0.0109	10.17	0.0272	bpql	0.0137
9/20/00	15:11	CW	SW-1 060100 1/50 dil Lab Dup	bpql	0.0052	7.236	bpql	bpql	bpql	0.0059	bpql	4.973	2.718	0.011	10.35	0.0258	bpql	N/A
			% difference of duplicates	N/A	N/A	1%	N/A	N/A	N/A	7%	N/A	1%	1%	1%	2%	5%	N/A	N/A
9/21/00	15:54	CW	LYSS2-4 072000 1/50 dil	0.0157	bpql	4.273	0.0053	bpql	0.9193	bpql	1.016	6.886	1.42	34.38	bpql	bpql	1.031	
9/21/00	15:32	CW	LYSS2-4 072000 1/50 dil Lab Dup	0.0169	bpql	4.185	0.0054	bpql	0.9207	bpql	1.013	6.881	1.406	34.52	bpql	bpql	1.029	
			% difference of duplicates	7%	N/A	2%	2%	N/A	0%	N/A	0%	0%	1%	0%	N/A	N/A	0%	
9/21/00	12:25	CW	LYSVD-1 071700 1/2 dil	bpql	0.0093	48.53	bpql	bpql	0.0048	0.0155	1.675	15.97	0.0142	46.8	0.0198	bpql	0.0028	
9/21/00	12:55	CW	LYSVD-1 071700 1/2 dil Lab Dup	bpql	0.0103	48.04	bpql	bpql	0.0047	0.0145	1.72	15.92	0.0142	45.91	0.0195	bpql	0.003	
			% difference of duplicates	N/A	10%	1%	N/A	N/A	2%	7%	3%	0%	0%	2%	2%	N/A	7%	
9/21/00	15:58	CW	LYSVD2-7 072400 1/2 dil	bpql	bpql	86.16	0.0202	bpql	0.9514	0.019	1.57	14.34	0.6835	11.13	bpql	bpql	4.971	
9/21/00	16:05	CW	LYSVD2-7 072400 1/2 dil Lab Dup	bpql	bpql	86.66	0.0204	bpql	0.9552	0.0184	1.587	14.42	0.6868	10.78	bpql	bpql	5.026	
			% difference of duplicates	N/A	N/A	1%	1%	N/A	0%	3%	1%	1%	0%	3%	N/A	N/A	1%	
9/25/00	14:31	CW	GKM-8RED 082900	0.0235	0.0212	64.68	bpql	bpql	bpql	1.166	3.667	15.14	1.026	17.58	0.177	bpql	0.0029	
9/25/00	15:04	CW	GKM-8RED 082900 Lab Dup	0.0211	0.021	64.4	bpql	bpql	bpql	1.153	3.618	15.01	1.022	17.29	0.1744	bpql	0.0029	
			% difference of duplicates	11%	1%	0%	N/A	N/A	N/A	1%	1%	1%	0%	2%	1%	N/A	0%	

EPA Method 200.15 Lab Duplicates by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	ICAP-ES Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
9/25/00	15:26	CW	GKM-9BLUE 082900	0.0119	0.0795	50.3	0.0012	bpql	bpql	5.759	5.388	13.62	0.6372	21.04	0.1546	bpql	bpql
9/25/00	16:03	CW	GKM-9BLUE 082900 Lab Dup	0.0114	0.0795	50.11	0.0012	bpql	bpql	5.792	5.43	13.67	0.6392	20.72	0.153	bpql	0.0017
			% difference of duplicates	4%	0%	0%	0%	N/A	N/A	1%	1%	0%	0%	2%	1%	N/A	N/A
9/25/00	13:18	CW	GKW-9 082900 Split	bpql	bpql	82.98	bpql	bpql	0.003	0.221	6.434	26	0.284	20.58	0.0183	bpql	0.0032
9/25/00	13:51	CW	GKW-9 082900 Split Lab Dup	bpql	bpql	82.67	bpql	bpql	0.1845	6.421	26.19	0.2843	20.43	0.0178	bpql	0.0026	
			% difference of duplicates	N/A	N/A	0%	N/A	N/A	N/A	18%	0%	1%	0%	1%	3%	N/A	21%
9/26/00	13:20	CW	GKW-11 082800	bpql	bpql	67.26	bpql	bpql	bpql	0.0186	2.897	27.45	0.0068	12.95	0.0562	bpql	0.0019
9/26/00	13:57	CW	GKW-11 082800 Lab Dup	bpql	bpql	67.23	bpql	bpql	bpql	0.018	2.93	26.65	0.0069	12.28	0.0581	bpql	0.0017
			% difference of duplicates	N/A	N/A	0%	N/A	N/A	N/A	3%	1%	3%	1%	5%	3%	N/A	11%
9/26/00	14:32	CW	GKM-1GREEN 082800	bpql	bpql	74.75	bpql	bpql	bpql	0.0524	5.116	21	0.7154	19.69	0.0145	bpql	0.0051
9/26/00	15:01	CW	GKM-1GREEN 082800 Lab Dup	bpql	bpql	77.34	bpql	bpql	bpql	0.0538	5.415	22.3	0.7473	18.22	0.0162	bpql	0.0053
			% difference of duplicates	N/A	N/A	3%	N/A	N/A	N/A	3%	6%	6%	4%	8%	11%	N/A	4%
9/25/00	15:59	CW	MLS-4RED 082800	bpql	0.005	76.03	bpql	bpql	bpql	0.0197	4.526	27.8	0.0041	26.9	0.0466	bpql	0.0029
9/26/00	12:48	CW	MLS-4RED 082800 Lab Dup	bpql	bpql	74.55	bpql	bpql	bpql	0.021	4.453	26.64	0.0039	28.09	0.0488	bpql	0.0025
			% difference of duplicates	N/A	N/A	2%	N/A	N/A	N/A	6%	2%	4%	5%	4%	5%	N/A	15%
10/18/00	14:53	CW	GKM-3GREEN 083000	bpql	0.0089	77.56	bpql	bpql	0.003	0.0363	6.931	14.59	0.0086	23.81	0.0182	bpql	0.0968
10/18/00	15:22	CW	GKM-3GREEN 083000 Lab Dup	bpql	0.0091	77.99	bpql	bpql	0.0045	0.0434	6.99	14.91	0.0094	24.4	0.0181	bpql	0.0978
			% difference of duplicates	N/A	N/A	2%	N/A	N/A	N/A	40%	18%	1%	2%	9%	1%	N/A	1%
10/18/00	13:43	CW	GKW-2 083000 FD	bpql	0.0064	71.26	bpql	bpql	0.0044	0.0335	8.246	12.6	0.0091	28.53	0.0505	bpql	0.0027
10/18/00	14:05	CW	GKW-2 083000 FD Lab Dup	bpql	0.0073	72.72	bpql	bpql	0.0039	0.0351	8.483	13.1	0.0094	28.44	0.0513	bpql	0.0025
			% difference of duplicates	N/A	N/A	13%	N/A	N/A	N/A	12%	5%	3%	4%	3%	2%	N/A	8%

EPA Method 200.15 Lab Duplicates by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
10/18/00	12:41	CW	GKW-7 083000	0.0326	bpql	42.68	bpql	bpql	bpql	0.2715	1.578	11.05	0.3494	19.67	0.0163	bpql	0.0026
10/18/00	13:08	CW	GKW-7 083000 Lab Dup	0.0436	bpql	43.23	bpql	bpql	0.0055	0.2782	1.578	11.32	0.3518	20.24	0.0169	bpql	0.006
			% difference of duplicates	29%	N/A	1%	N/A	N/A	N/A	2%	0%	2%	1%	3%	4%	N/A	79%
10/19/00	15:01	CW	GKM-4W 100100	bpql	bpql	81.9	bpql	bpql	0.0032	0.0296	5.664	21.64	0.0038	26.37	0.0727	bpql	0.0068
10/19/00	15:38	CW	GKM-4W 100100 Lab Dup	bpql	bpql	84.15	bpql	bpql	0.0303	5.745	21.42	0.0039	26.07	0.0781	bpql	0.0075	
			% difference of duplicates	N/A	N/A	3%	N/A	N/A	N/A	2%	1%	1%	3%	1%	7%	N/A	10%
10/18/00	15:15	CW	MLS-3W 100100	bpql	bpql	108.8	bpql	bpql	0.0066	0.0246	5.845	29.14	0.0701	17.25	0.05	bpql	0.0251
10/19/00	14:30	CW	MLS-3W 100100 Lab Dup	bpql	bpql	110.7	bpql	bpql	0.0066	0.0212	5.735	29.99	0.0682	17.52	0.0456	bpql	0.0241
			% difference of duplicates	N/A	N/A	2%	N/A	N/A	N/A	0%	15%	2%	3%	3%	2%	N/A	4%
10/20/00	16:24	CW	GKM-1WC 093000	bpql	0.0149	85.64	bpql	bpql	bpql	0.0215	6.226	17.46	0.0011	21.45	0.0594	bpql	bpql
10/20/00	16:50	CW	GKM-1WC 093000 Lab Dup	bpql	0.0145	83.63	bpql	bpql	bpql	0.0208	6.184	17.4	0.0011	21.41	0.0577	bpql	bpql
			% difference of duplicates	N/A	3%	2%	N/A	N/A	N/A	3%	1%	0%	0%	0%	3%	N/A	N/A
10/20/00	15:19	CW	GKM-2BLUE 093000	0.0562	0.0057	30.74	bpql	bpql	0.0091	0.1529	6.594	5.482	0.0065	26.17	0.032	bpql	0.008
10/20/00	15:48	CW	GKM-2BLUE 093000 Lab Dup	0.0632	0.0052	29.87	bpql	bpql	0.0092	0.1627	6.639	5.524	0.0062	25.5	0.0302	bpql	0.0079
			% difference of duplicates	12%	9%	3%	N/A	N/A	N/A	6%	1%	1%	5%	3%	6%	N/A	1%
10/20/00	12:03	CW	GKM-6W 092900	0.0116	bpql	36.82	bpql	bpql	bpql	3.607	4.208	7.785	0.4086	18.13	0.0844	bpql	0.0028
10/20/00	12:29	CW	GKM-6W 092900 Lab Dup	bpql	bpql	36.9	bpql	bpql	bpql	3.626	4.248	7.797	0.4132	17.65	0.0842	bpql	0.0056
			% difference of duplicates	N/A	N/A	0%	N/A	N/A	N/A	1%	1%	0%	1%	3%	0%	N/A	67%
10/20/00	14:22	CW	GKM-8GREEN 092900	0.0288	0.0155	60.69	bpql	bpql	0.0052	2.441	3.403	14.65	0.7179	17.75	0.3914	bpql	0.0076
10/20/00	14:48	CW	GKM-8GREEN 093000 Lab Dup	0.0225	0.0159	60.69	bpql	bpql	0.0048	2.468	3.388	14.67	0.7282	17.43	0.3956	bpql	0.0079
			% difference of duplicates	25%	3%	0%	N/A	N/A	N/A	8%	1%	0%	0%	1%	2%	1%	4%

EPA Method 200.15 Lab Duplicates by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001	
10/20/00	12:51	CW	GKM-9RED 092900	0.012	0.0722	51.25	0.0011	bpql	bpql	3.897	5.471	12.83	0.804	20.72	0.1608	bpql	0.0017	
10/20/00	13:28	CW	GKM-9RED 092900 Lab Dup	0.0179	0.0701	49.9	0.001	bpql	bpql	3.899	5.514	12.88	0.7956	20.56	0.156	bpql	0.0019	
			% difference of duplicates	39%	3%	3%	10%	N/A	N/A	0%	1%	0%	1%	1%	3%	N/A	11%	
10/20/00	11:52	CW	MLS-5RED 100100	bpql	0.0055	68.94	bpql	bpql	bpql	0.0327	3.953	27.66	0.0096	13.92	0.0311	bpql	bpql	
10/20/00	12:00	CW	MLS-5RED 100100 Lab Dup	bpql	0.0059	69.29	bpql	bpql	bpql	0.031	3.907	27.7	0.0096	13.95	0.0313	bpql	0.0017	
			% difference of duplicates	N/A	7%	1%	N/A	N/A	N/A	5%	1%	0%	0%	0%	1%	N/A	N/A	
10/30/00	17:53	TMC	LYSS2-4 083000	0.2682	bpql	7.5772	0.0078	bpql	1.6964	bpql	1.5991	10.237	1.92717	60.154	bpql	bpql	1.4221	
10/30/00	18:41	TMC	LYSS2-4 083000 Lab Dup	0.2631	bpql	7.522	0.0076	bpql	1.667	bpql	1.536	10.11	1.897	59.37	bpql	bpql	1.399	
			% difference of duplicates	2%	N/A	1%	2%	N/A	2%	N/A	4%	1%	2%	1%	N/A	N/A	2%	
10/26/00	11:42	CW	LYSD2-5 093000	bpql	bpql	156.1	0.0307	bpql	1.336	0.0341	8.55	31.6	0.4281	39.6	0.0136	bpql	bpql	10.54
10/26/00	12:19	CW	LYSD2-5 093000 Lab Dup	bpql	bpql	153.2	0.0311	bpql	1.35	0.0327	8.648	31.96	0.4238	39.42	0.0122	bpql	bpql	10.48
			% difference of duplicates	N/A	N/A	2%	1%	N/A	1%	4%	1%	1%	1%	0%	11%	N/A	1%	
10/26/00	13:59	CW	GKM-1GREEN 061900 1/2 dil	0.049	bpql	42.59	bpql	bpql	bpql	0.1209	2.825	12.76	5.002	12.66	bpql	bpql	0.009	
10/26/00	14:40	CW	GKM-1GREEN 061900 1/2 dil L.Dup	0.0548	bpql	40.87	bpql	bpql	bpql	0.1187	2.976	12.57	4.959	10.17	bpql	bpql	0.007	
			% difference of duplicates	11%	N/A	4%	N/A	N/A	N/A	2%	5%	2%	1%	22%	N/A	N/A	25%	
10/26/00	15:08	CW	LYSD-7 092900 1/4 dil	0.2921	bpql	42.86	0.0147	bpql	4.766	0.0083	0.7796	5.555	1.302	4.514	bpql	bpql	3.373	
10/26/00	15:45	CW	LYSD-7 092900 1/4 dil Lab Dup	0.2923	bpql	43.29	0.0176	bpql	5.103	0.0061	1.406	5.855	1.36	3.064	bpql	bpql	3.652	
			% difference of duplicates	0%	N/A	1%	18%	N/A	7%	31%	57%	5%	4%	38%	N/A	N/A	8%	
10/31/00	11:07	CW	LYSS-1 093000	bpql	0.0142	18.17	bpql	bpql	bpql	0.3923	10.61	bpql	46.19	bpql	bpql	0.0011		
10/31/00	11:16	CW	LYSS-1 093000 Lab Dup	bpql	0.0141	18.48	bpql	bpql	bpql	0.3699	10.64	bpql	46.77	bpql	bpql	0.0014		
			% difference of duplicates	N/A	1%	2%	N/A	N/A	N/A	6%	0%	N/A	1%	N/A	N/A	24%		

EPA Method 200.15 Lab Duplicates by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
10/31/00	11:56	CW	LYSD-4 083000 1/4 dil	bpql	0.0074	25.38	0.0019	bpql	0.1664	0.012	1.507	8.1	0.0695	72.89	0.0484	bpql	0.2298
10/31/00	12:32	CW	LYSD-4 083000 1/4 dil Lab Dup % difference of duplicates	bpql	0.0079	26.28	0.002	bpql	0.1783	0.0125	1.63	8.692	0.0729	76.93	0.051	bpql	0.2432
N/A				N/A	7%	3%	5%	N/A	7%	4%	8%	7%	5%	5%	5%	N/A	6%
10/31/00	13:22	CW	LYSVD-7 082900 1/4 dil	bpql	bpql	51.54	0.0144	bpql	0.3447	0.0082	1.416	6.767	0.0666	44.21	bpql	bpql	3.509
10/31/00	14:00	CW	LYSVD-7 082900 1/4 dil Lab Dup % difference of duplicates	bpql	bpql	54.91	0.0151	bpql	0.3661	0.0088	1.456	7.285	0.0702	46.62	bpql	bpql	3.708
N/A				N/A	N/A	6%	5%	N/A	6%	7%	3%	7%	5%	5%	N/A	N/A	6%
12/1/00	11:06	CW	GKM-1GREEN 061900 1/4 dil	n/a	n/a	22.27	n/a	n/a	bpql	n/a	1.421	6.119	2.66	6.863	n/a	n/a	0.0041
12/1/00	11:43	CW	GKM-1GREEN 061900 1/4 dil Lab Dup % difference of duplicates	n/a	n/a	21.24	n/a	n/a	bpql	n/a	1.45	6.127	2.618	6.91	n/a	n/a	0.0047
N/A				N/A	N/A	5%	n/a	n/a	N/A	n/a	2%	0%	2%	1%	n/a	n/a	14%
<i>bpql = below the probable quantitative limit</i>																	

APPENDIX A – Water Resources

A.6 Metals QC Data

A.6.4 Laboratory Sample Fortified Matrix Sample Spikes and Fortified Matrix Blanks

Laboratory spikes are samples in which analytes of known concentrations have been added to an aliquot of the sample digest in order to assess matrix effects on analyte recoveries.

Lab Fortified Blank - Lab Fortified Blanks (LFBs) are samples in which analytes of known concentrations have been added to an aliquot of the calibration blank in order to assess matrix effects on analyte recoveries.

Spike recoveries are calculated by subtracting the diluted sample value from the spiked sample value and dividing the difference by the amount of spike added. We then multiply this value by 100 to obtain percent units.

EPA Method 200.15 Sample Fortified Matrix Spikes by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5	
8/2/00	15:48	CW	MW-2 060200 SPK DIL	bpql 0.5161	bpql 0.5481	76.69 93.44	bpql 0.2114	bpql 0.5246	0.0032 0.528	0.0173 0.5483	1.998 7.124	27.61 32.73	bpql 0.524	15.89 26.25	0.07 1.178	bpql 0.533	0.0034 0.5234	
8/2/00	15:59	CW	MW-2 060200 SPK % spike recovery	N/A	N/A	84%	N/A	N/A	105%	106%	103%	102%	N/A	104%	111%	N/A	104%	
8/2/00	16:01	CW	SW-2 060100 SPK DIL	bpql 0.5265	0.0596 0.5913	110.5 124.9	0.0014 0.2126	bpql 0.5118	0.0627 0.6106	0.0402 0.5624	12.68 17.35	22.79 28.72	0.0246 0.5426	44.8 52.49	0.146 1.175	bpql 0.527	0.0144 0.5359	
8/2/00	16:06	CW	SW-2 060100 SPK % spike recovery	N/A	106%	72%	106%	N/A	110%	104%	93%	119%	104%	77%	103%	N/A	104%	
8/4/00	15:45	CW	GKM-1RED 061900SPK DIL	0.0117 0.5485	bpql 0.5519	87.88 107.3	bpql 0.2093	bpql 0.5229	bpql 0.5334	0.0408 0.5513	5.187 9.802	17.02 22.7	1.084 1.598	17.3 27.35	0.017 1.009	bpql 0.521	0.0035 0.5209	
8/4/00	15:49	CW	GKM-1RED 061900 SPK % spike recovery	107%	N/A	97%	N/A	N/A	N/A	102%	92%	114%	103%	101%	99%	N/A	103%	
8/4/00	16:41	CW	GKM-4RED 062000 SPK DIL	0.022 0.5384	bpql 0.519	75 96.62	bpql 0.2018	bpql 0.4964	0.007 0.5198	0.0554 0.5528	5.016 11.53	19.34 26.06	0.2298 0.7226	26.6 39.31	0.023 0.993	bpql 0.498	0.0176 0.5154	
8/4/00	16:44	CW	GKM-4RED 062000 SPK % spike recovery	103%	N/A	108%	N/A	N/A	N/A	103%	99%	130%	134%	99%	127%	97%	N/A	100%
8/4/00	12:09	CW	GKW-2 062800 SPK DIL	0.0125 0.5336	0.0113 0.5354	74.22 91	bpql 0.2061	bpql 0.5036	bpql 0.5202	0.0372 0.545	7.355 12.03	12.74 17.99	0.0075 0.5144	16.42 26.04	0.068 1.056	bpql 0.512	0.0038 0.5125	
8/4/00	12:14	CW	GKW-2 062800 SPK % spike recovery	104%	105%	84%	N/A	N/A	N/A	102%	94%	105%	101%	96%	99%	N/A	102%	
8/4/00	13:05	CW	GKW-9 062900 SPK DIL	0.014 0.531	bpql 0.5157	72.7 88.52	bpql 0.2028	bpql 0.5066	0.0033 0.5227	0.0668 0.5643	6.234 10.93	22.06 27.01	0.5277 1.003	20.06 29.28	0.014 0.996	bpql 0.503	0.0042 0.5036	
8/4/00	13:08	CW	GKW-9 062900 SPK % spike recovery	103%	N/A	79%	N/A	N/A	104%	100%	94%	99%	95%	92%	98%	N/A	100%	
8/4/00	17:13	CW	MLS-5RED 062000 SPK DIL	0.0138 0.5444	0.0054 0.5305	57.45 78.97	bpql 0.2111	bpql 0.5177	bpql 0.5259	0.028 0.5491	3.408 8.356	22.49 28.67	0.0393 0.5644	12.14 22.09	0.027 1.056	bpql 0.525	0.0047 0.5251	
8/4/00	17:17	CW	MLS-5RED 062000 SPK % spike recovery	106%	105%	108%	N/A	N/A	N/A	104%	99%	124%	105%	100%	103%	N/A	104%	

EPA Method 200.15 Sample Fortified Matrix Spikes by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	CW	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
8/4/00	14:03	CW	MW-4 SPLIT 063000 SPK DIL	bpql 0.535	bpql 0.5281	74.77 92.44	bpql 0.2059	bpql 0.5168	bpql 0.5288	0.0208 0.5251	3.986 8.823	25.74 31.05	0.0137 0.518	25 35.11	0.054 1.04	bpql 0.51	0.0034 0.5112
8/4/00	14:07	CW	MW-4 SPLIT 063000 SPK % spike recovery	N/A N/A	N/A 88%	N/A 88%	N/A N/A	N/A N/A	N/A 101%	N/A 97%	N/A 106%	N/A 101%	N/A 101%	N/A 99%	N/A N/A	N/A 102%	
8/7/00	16:16	CW	GKM-6BLUE 062700 SPK DIL	0.0196 0.5296	bpql 0.5239	65.18 82.36	bpql 0.2083	bpql 0.4957	bpql 0.515	4.916 5.345	4.259 8.582	14.88 20.07	1.225 1.68	20.48 30.18	0.047 0.986	bpql 0.515	0.0056 0.5141
8/7/00	16:20	CW	GKM-6BLUE 062700 SPK % spike recovery	102% N/A	N/A 86%	N/A 86%	N/A N/A	N/A N/A	N/A 86%	N/A 86%	N/A 104%	N/A 91%	N/A 97%	N/A 94%	N/A N/A	N/A 102%	
8/7/00	14:43	CW	GKM-8GREEN 062600 SPK DIL	0.0508 0.5802	0.1149 0.516	67.45 85.68	0.0019 0.2144	bpql 0.5136	bpql 0.5141	1.78 2.294	3.725 8.453	16.08 21.43	0.6413 1.137	17.77 27.55	0.138 1.132	bpql 0.524	0.0292 0.5526
8/7/00	14:47	CW	GKM-8GREEN 062600 SPK % spike recovery	106% 80%	91% 106%	N/A N/A	N/A 106%	N/A N/A	N/A 103%	N/A 95%	N/A 107%	N/A 99%	N/A 98%	N/A 99%	N/A N/A	N/A 105%	
8/7/00	13:29	CW	GKM-9RED 062600 SPK DIL	0.015 0.5444	0.0662 0.4957	61.02 80.95	bpql 0.2132	bpql 0.5161	bpql 0.5176	5.244 5.777	6.393 10.99	15.9 21.31	0.9489 1.445	23.31 32.97	0.068 1.034	bpql 0.528	0.0029 0.5267
8/7/00	13:33	CW	GKM-9RED 062600 SPK % spike recovery	106% 86%	86% 100%	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A 107%	N/A 92%	N/A 108%	N/A 99%	N/A 97%	N/A N/A	N/A 105%	
8/7/00	15:55	CW	TRIP BLANK 062700 SPK DIL	bpql 0.5242	bpql 0.2959	bpql 20.23	bpql 0.2065	bpql 0.5269	bpql 0.5208	bpql 0.5348	bpql 5.233	bpql 5.178	bpql 0.5268	bpql 10.63	bpql 1.056	bpql 0.527	bpql 0.5209
8/7/00	15:46	CW	TRIP BLANK 062700 SPK % spike recovery	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A N/A	
8/8/00	16:50	CW	GKM-6BLUE 072400 SPK DIL	0.1391 0.5226	bpql 0.4063	44.49 47.99	bpql 0.1558	bpql 0.3947	0.0031 0.4001	0.3491 0.6635	4.271 7.076	9.564 11.3	0.6359 0.8621	18.09 26.35	0.015 0.775	bpql 0.391	0.0049 0.391
8/8/00	16:54	CW	GKM-6BLUE 072400 SPK % spike recovery	77% N/A	N/A 18%	N/A N/A	N/A N/A	N/A 79%	N/A 63%	N/A 56%	N/A 35%	N/A 45%	N/A 83%	N/A 76%	N/A N/A	N/A 77%	
8/8/00	16:00	CW	GKM-6W 072400 SPK DIL	bpql 0.5366	bpql 0.5348	38.78 57.52	bpql 0.2047	bpql 0.5189	bpql 0.5202	3.582 4.013	3.998 8.774	7.969 13.3	0.433 0.9238	17.56 26.94	0.072 1.021	bpql 0.519	0.0047 0.5127
8/8/00	16:07	CW	GKM-6W 072400 SPK % spike recovery	N/A N/A	N/A 94%	N/A N/A	N/A N/A	N/A N/A	N/A 86%	N/A 96%	N/A 107%	N/A 98%	N/A 94%	N/A 95%	N/A N/A	N/A 102%	

EPA Method 200.15 Sample Fortified Matrix Spikes by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
8/8/00	17:01	CW	GKM-9 072400 FD SPK DIL	0.0159	bpql	87.45	bpql	bpql	0.0045	0.1181	7.231	28.15	0.3317	23.68	0.027	bpql	0.0047
8/8/00	17:04	CW	GKM-9 072400 FD SPK % spike recovery	0.5558 108%	0.5663 N/A	107.6 101%	0.2121 N/A	0.5284 N/A	0.5381 107%	0.6451 105%	12.15 98%	33.95 116%	0.8725 108%	32.86 92%	1.061 103%	0.53 N/A	0.526 104%
8/8/00	14:53	CW	GKW-7 072000 FD SPK DIL	0.0537	bpql	43.83	bpql	bpql	bpql	0.1629	1.482	11.3	0.3512	18.56	0.012	bpql	0.0034
8/8/00	14:57	CW	GKW-7 072000 FD SPK % spike recovery	0.5924 108%	0.5528 N/A	63.27 97%	0.2103 N/A	0.5295 N/A	0.5341 N/A	0.6922 106%	6.727 105%	16.86 111%	0.8771 105%	28.03 95%	1.044 103%	0.529 N/A	0.5236 104%
8/8/00	13:15	CW	MLS-3RED 072000 SPK DIL	0.1202	0.0137	56.99	bpql	bpql	0.0048	0.198	13.05	20.52	0.7301	24.19	0.165	bpql	0.0045
8/8/00	13:56	CW	MLS-3RED 072000 SPK % spike recovery	0.6735 111%	0.5208 101%	79.72 114%	0.2108 N/A	0.5325 N/A	0.5461 108%	0.7258 106%	18.3 105%	27.19 133%	1.276 109%	35.1 109%	1.182 102%	0.528 N/A	0.5274 105%
8/10/00	14:16	CW	GKM-2W 071700 FD SPK DIL	bpql	bpql	30.72	bpql	bpql	bpql	0.0371	5.939	5.212	0.0063	25.4	0.023	bpql	0.0029
8/10/00	14:21	CW	GKM-2W 071700 FD SPK % spike recovery	0.4962 N/A	0.5063 N/A	49.57 94%	0.1991 N/A	0.4953 N/A	0.502 N/A	0.5375 100%	10.68 95%	10.16 99%	0.5027 99%	35.1 97%	1.016 99%	0.497 N/A	0.4952 98%
8/10/00	15:15	CW	MLS-5RED 071800 SPK DIL	bpql	0.0053	64.1	bpql	bpql	bpql	0.0182	3.48	24.8	0.0117	12.09	0.029	bpql	0.0039
8/10/00	15:19	CW	MLS-5RED 071800 SPK % spike recovery	0.5097 N/A	0.5207 103%	81.41 87%	0.2047 N/A	0.4942 N/A	0.5023 N/A	0.528 102%	8.381 98%	29.95 103%	0.5106 100%	21.39 93%	1.02 99%	0.507 N/A	0.5001 99%
8/10/00	16:16	CW	GKM-1GREEN 071700 SPK DIL	0.0651	bpql	65.13	bpql	bpql	bpql	0.2486	4.328	18.59	3.938	18.56	0.011	bpql	0.0067
8/10/00	16:21	CW	GKM-1GREEN 071700 SPK % spike recovery	0.5705 101%	0.5149 N/A	82.4 86%	0.2021 N/A	0.4879 N/A	0.501 N/A	0.7554 101%	8.814 90%	23.88 106%	4.409 94%	27.56 90%	0.951 94%	0.498 N/A	0.4983 98%
8/11/00	12:54	CW	GKM-2BLUE 071700 SPK DIL	0.1093	0.0082	29.55	bpql	bpql	0.0193	0.3706	6.428	5.144	0.1256	25.41	0.037	bpql	0.0118
8/11/00	12:58	CW	GKM-2BLUE 071700 SPK % spike recovery	0.6959 117%	0.5012 99%	48.26 94%	0.1989 N/A	0.4953 N/A	0.5279 102%	0.9417 114%	11.1 93%	10.25 102%	0.6237 100%	33.61 82%	1.025 99%	0.498 N/A	0.5097 100%

EPA Method 200.15 Sample Fortified Matrix Spikes by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
8/11/00	17:22	CW	GKM-9W 072000 SPK DIL	bpql 0.5146	0.0455 0.5533	47.2 66.1	bpql 0.2033	bpql 0.4945	bpql 0.5099	0.5307 1.032	4.273 8.917	11.4 16.72	1.024 1.506	16.23 26.18	0.092 1.046	bpql 0.496	0.005 0.4986
8/11/00	17:26	CW	GKM-9W 072000 SPK % spike recovery	N/A 102%	95%	N/A	N/A	N/A	N/A	100%	93%	106%	96%	100%	95%	N/A 99%	
8/11/00	15:20	CW	GKW-1 071900 SPK DIL	0.0447	bpql	54.48	bpql	bpql	bpql	0.0501	5.849	10.13	0.0433	23.55	0.025	bpql	0.0033
8/11/00	15:24	CW	GKW-1 071900 SPK % spike recovery	0.5361 98%	0.5188 N/A	71.5 85%	0.2075 N/A	0.4922 N/A	0.506 N/A	0.5568 101%	10.69 97%	15.22 102%	0.5473 101%	31.91 84%	1.028 100%	0.509 N/A	0.5107 101%
8/11/00	16:25	CW	GKW-5 071900 SPK DIL	bpql 0.5187	0.0296 0.5526	73.54 90.92	bpql 0.2054	bpql 0.5098	0.005 0.5264	0.0266 0.5257	7.541 12.18	15.3 20.6	0.0089 0.5056	16.51 27.45	0.088 1.061	bpql 0.502	0.0039 0.5019
8/11/00	16:21	CW	GKW-5 071900 SPK % spike recovery	N/A 105%	87%	N/A	N/A	104%	100%	93%	106%	99%	109%	97%	N/A	100%	
8/11/00	11:43	CW	MLS-5BLUE 071800 SPK DIL	bpql 0.5265	bpql 0.5189	69.1 86.6	bpql 0.2025	bpql 0.5062	0.0037 0.5223	0.0318 0.5327	4.958 9.787	29.25 34.52	0.3002 0.79	15.47 24.98	0.022 1.03	bpql 0.504	0.0041 0.503
8/11/00	11:47	CW	MLS-5BLUE 071800 SPK % spike recovery	N/A N/A	88%	N/A	N/A	104%	100%	97%	105%	98%	95%	101%	N/A	100%	
9/20/00	12:35	CW	GKM-6BLUE 072400 SPK DIL	0.2557	bpql	41	bpql	bpql	bpql	0.413	4.246	8.95	0.6061	17	0.01	bpql	0.0023
9/20/00	12:39	CW	GKM-6BLUE 072400 SPK % spike recovery	0.7527 99%	0.499 N/A	57.9 85%	0.2043 N/A	0.495 N/A	0.5163 N/A	0.9238 102%	9.099 97%	14.06 102%	1.085 96%	26.25 93%	1.009 100%	0.506 N/A	0.5047 100%
9/20/00	13:34	CW	MLS-3W 062700 1/2 dil SPK DIL	bpql 0.5185	bpql 0.515	31.27 49.94	bpql 0.2081	bpql 0.5106	bpql 0.5229	0.015 0.5376	3.229 8.234	8.366 13.63	0.0854 0.5964	6.705 16.29	0.024 1.061	bpql 0.517	0.0014 0.5145
9/20/00	13:37	CW	MLS-3W 062700 1/2 dil SPK % spike recovery	N/A N/A	93%	N/A	N/A	N/A	N/A	105%	100%	105%	102%	96%	104%	N/A	103%
9/20/00	15:24	CW	MLS-4W 071800 SPK DIL	bpql 0.5241	bpql 0.509	69.32 83.69	bpql 0.2096	bpql 0.4934	bpql 0.536	0.0247 0.5302	4.01 9.14	25.02 30.33	0.0132 0.5063	24.67 34.4	0.042 1.017	bpql 0.504	0.0051 0.5141
9/20/00	15:31	CW	MLS-4W 071800 SPK % spike recovery	N/A N/A	72%	N/A	N/A	N/A	N/A	101%	103%	106%	99%	97%	98%	N/A	102%

EPA Method 200.15 Sample Fortified Matrix Spikes by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
9/20/00	12:26	CW	SiO2 Flour #1 063000 SPK DIL	bpql	bpql	0.7156	bpql	bpql	bpql	bpql	bpql	0.125	0.0033	bpql	bpql	bpql	0.0051
9/20/00	12:30	CW	SiO2 Flour #1 063000 SPK % spike recovery	0.5076 N/A	0.4866 N/A	19.79 95%	0.2064 N/A	0.5182 N/A	0.5146 N/A	0.534 N/A	5.124 N/A	4.94 96%	0.5209 104%	10.05 N/A	1.079 N/A	0.523 N/A	0.5167 102%
9/21/00	16:20	CW	GKM-6W 072400 SPK DIL	bpql	bpql	34.79	bpql	bpql	bpql	3.475	3.902	7.399	0.4042	16.35	0.068	bpql	0.0029
9/21/00	16:24	CW	GKM-6W 072400 SPK % spike recovery	0.468 N/A	0.4644 N/A	53.27 92%	0.1873 N/A	0.4606 N/A	0.4742 N/A	3.913 88%	8.638 95%	12.58 104%	0.8456 88%	26.1 98%	0.987 92%	0.468 N/A	0.4643 92%
9/25/00	15:17	CW	GKM-8RED 082900 SPK DIL	0.0185	0.0187	60.2	bpql	bpql	bpql	1.088	3.376	14	0.9498	16.24	0.16	bpql	0.0031
9/25/00	15:21	CW	GKM-8RED 082900 SPK % spike recovery	0.569 110%	0.57 110%	75.71 78%	0.2193 N/A	0.5255 N/A	0.5531 N/A	1.616 106%	8.07 94%	18.96 99%	1.454 101%	25.49 93%	1.178 102%	0.534 N/A	0.5405 107%
9/25/00	16:15	CW	GKM-9RED 082900 SPK DIL	0.0141	0.0666	51.53	0.0011	bpql	bpql	3.893	5.36	13.07	0.8155	20.3	0.141	bpql	0.0026
9/25/00	16:19	CW	GKM-9RED 082900 SPK % spike recovery	0.5576 109%	0.6083 108%	68.1 83%	0.2142 107%	0.5196 N/A	0.5463 N/A	4.35 91%	9.928 91%	18.2 103%	1.296 96%	29.92 96%	1.094 95%	0.525 N/A	0.5269 105%
9/25/00	14:03	CW	GKW-8 082900 SPK DIL	0.0624	bpql	39.62	bpql	bpql	bpql	0.1972	4.829	8.094	0.0132	11.31	0.028	bpql	0.0031
9/25/00	14:09	CW	GKW-8 082900 SPK % spike recovery	0.6311 114%	0.561 N/A	57.78 91%	0.2229 N/A	0.5389 N/A	0.5595 N/A	0.7607 113%	9.829 100%	13.45 107%	0.5589 109%	21.27 100%	1.094 107%	0.549 N/A	0.5509 110%
9/25/00	12:49	CW	MLS-3W 062700 1/2 dil SPK DIL	bpql	0.0058	30.09	bpql	bpql	bpql	0.0272	7.703	11.26	0.3812	15.61	0.042	bpql	0.0024
9/25/00	12:53	CW	MLS-3W 062700 1/2 dil SPK % spike recovery	0.5146 N/A	0.5141 102%	48.26 91%	0.2102 N/A	0.5084 N/A	0.5203 N/A	0.5511 105%	12.61 98%	16.45 104%	0.8817 100%	25.14 95%	1.081 104%	0.52 N/A	0.5149 103%
9/26/00	15:13	CW	GKW-10 082800 SPK DIL	0.0575	bpql	69.3	bpql	bpql	bpql	0.0917	3.784	22.24	0.0176	14.75	0.044	bpql	0.0036
9/26/00	15:19	CW	GKW-10 082800 SPK % spike recovery	0.6107 111%	0.5241 N/A	85.93 83%	0.2108 N/A	0.5046 N/A	0.527 N/A	0.6339 108%	8.583 96%	27.61 107%	0.5232 101%	23.32 86%	1.061 102%	0.513 N/A	0.518 103%

EPA Method 200.15 Sample Fortified Matrix Spikes by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
9/26/00	14:09	CW	LYSVD-1 082800 SPK DIL	bpql 0.5275	0.0162 0.5642	84.49 100.6	bpql 0.2172	bpql 0.5193	0.0074 0.5528	0.0237 0.5494	2.692 7.576	27.52 32.93	bpql 0.5217	67.17 77.08	0.023 1.08	bpql 0.527	0.0104 0.5401
9/26/00	14:15	CW	LYSVD-1 082800 SPK % spike recovery	N/A 110%	N/A 81%	N/A	N/A	N/A	109% 105%	105% 98%	98% 108%	N/A 99%	N/A 106%	N/A 106%	N/A N/A	N/A 106%	N/A 106%
9/26/00	13:05	CW	MW-4 FD 082800 SPK DIL	bpql 0.4813	bpql 0.511	74.48 91.76	bpql 0.1971	bpql 0.4869	bpql 0.491	0.0251 0.5146	4.125 8.892	24.77 29.86	0.0343 0.5185	24.69 34.64	0.05 1.058	bpql 0.493	0.0016 0.4881
9/26/00	13:09	CW	MW-4 FD 082800 SPK % spike recovery	N/A N/A	N/A 86%	N/A	N/A	N/A	N/A	98% 95%	102% 97%	N/A 100%	N/A 101%	N/A N/A	N/A 97%	N/A 97%	
10/18/00	13:20	CW	GKM-3RED 083000 SPK DIL	bpql 0.5081	0.0098 0.5443	70.5 87.57	bpql 0.2101	bpql 0.5074	0.0058 0.5249	0.0349 0.5565	6.323 11.11	12.76 17.94	0.0064 0.5197	21.16 30.43	0.036 1.084	bpql 0.521	0.1471 0.6688
10/18/00	13:24	CW	GKM-3RED 083000 SPK % spike recovery	N/A 107%	N/A 85%	N/A	N/A	N/A	104%	104%	96%	104%	103%	93%	105%	N/A N/A	104%
10/18/00	15:37	CW	GKM-4W 083000 SPK DIL	bpql 0.5747	bpql 0.6173	77.1 102.6	bpql 0.2366	bpql 0.5893	bpql 0.5974	0.0289 0.6314	5.445 10.86	19.61 26.5	0.0064 0.5915	23.87 34.4	0.074 1.294	bpql 0.596	0.0083 0.5962
10/18/00	15:41	CW	GKM-4W 083000 SPK % spike recovery	N/A N/A	N/A 128%	N/A	N/A	N/A	N/A	121%	108%	138% 117%	117%	105%	122%	N/A N/A	118%
10/18/00	14:20	CW	GKM-5BLUE 083000 SPK DIL	bpql 0.5325	0.008 0.5711	73.39 91.8	0.0021 0.222	bpql 0.5377	0.0333 0.574	0.039 0.5959	5.064 9.877	15.97 21.34	0.0275 0.5694	19.48 29.25	0.022 1.141	bpql 0.555	0.2056 0.7528
10/18/00	14:24	CW	GKM-5BLUE 083000 SPK % spike recovery	N/A 113%	N/A 92%	N/A 110%	N/A	N/A	108%	111%	96%	107%	108%	98%	112%	N/A N/A	109%
10/18/00	15:46	CW	INFLOW 071900 SPK DIL	bpql 0.5119	bpql 0.5405	54.69 69.39	bpql 0.2107	bpql 0.5163	bpql 0.5274	0.0297 0.5609	6.416 10.98	13.06 17.72	0.0629 0.5836	29.86 37.69	1.318 2.245	bpql 0.533	0.0043 0.5316
10/18/00	15:51	CW	INFLOW 071900 SPK % spike recovery	N/A N/A	N/A 74%	N/A	N/A	N/A	N/A	106%	91%	93% 104%	78%	93%	N/A N/A	105%	
10/19/00	16:05	CW	GKM-4RED 100100 SPK DIL	bpql 0.5304	bpql 0.5452	78.44 94.34	bpql 0.2144	bpql 0.5093	0.0062 0.5528	0.0287 0.5458	5.276 10.3	20.98 26.37	0.0005 0.5145	25.81 35.21	0.053 1.036	bpql 0.518	0.011 0.5339
10/19/00	16:09	CW	GKM-4RED 100100 SPK % spike recovery	N/A N/A	N/A 80%	N/A	N/A	N/A	109%	103%	100%	108%	103%	94%	98%	N/A N/A	105%

EPA Method 200.15 Sample Fortified Matrix Spikes by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
10/19/00	14:44	CW	MLS-4RED 100100 SPK DIL	bpql 0.5439	bpql 0.527	72.54 88.64	bpql 0.2159	bpql 0.4989	bpql 0.549	0.0217 0.526	4.331 9.274	26.33 32.31	0.0044 0.5042	25.49 35.19	0.045 0.976	bpql 0.511	0.0035 0.5218
10/19/00	14:51	CW	MLS-4RED 100100 SPK % spike recovery	N/A	N/A	81%	N/A	N/A	N/A	101%	99%	120%	100%	97%	93%	N/A	104%
10/19/00	15:58	CW	MLS-5W 100100 SPK DIL	bpql 0.5075	0.0056 0.516	64.66 81.64	bpql 0.2031	bpql 0.4946	bpql 0.5155	0.025 0.5283	3.694 8.651	25.82 30.76	0.0395 0.5318	12.52 22.14	0.03 0.999	bpql 0.502	0.0025 0.5001
10/19/00	15:52	CW	MLS-5W 100100 SPK % spike recovery	N/A	102%	85%	N/A	N/A	N/A	101%	99%	99%	98%	96%	97%	N/A	100%
10/20/00	16:01	CW	GKM-1REDA 093000 SPK DIL	bpql 0.5734	0.0128 0.5844	85.47 102.7	bpql 0.2273	bpql 0.5362	bpql 0.5838	0.0305 0.5678	6.139 11.36	17.77 23.49	0.0067 0.5309	20.21 30.13	0.05 1.067	bpql 0.531	0.0038 0.537
10/20/00	16:05	CW	GKM-1REDA 093000 SPK % spike recovery	N/A	114%	86%	N/A	N/A	N/A	107%	104%	114%	105%	99%	102%	N/A	107%
10/20/00	17:03	CW	GKM-2W 093000 SPK DIL	0.0145 0.5951	bpql 0.5794	31.46 49.17	bpql 0.2317	bpql 0.5595	bpql 0.589	0.0664 0.6327	6.737 11.58	5.704 10.83	0.0049 0.5547	26.41 35.88	0.023 1.128	bpql 0.554	0.0031 0.5582
10/20/00	17:07	CW	GKM-2W 093000 SPK % spike recovery	116%	N/A	89%	N/A	N/A	N/A	113%	97%	103%	110%	95%	110%	N/A	111%
10/20/00	12:42		GKM-6BLUE 092900 SPK DIL	0.1008	bpql	35.73	bpql	bpql	bpql	3.375	3.115	7.636	0.6234	16.26	0.068	bpql	0.0027
10/20/00	12:46	CW	GKM-6BLUE 092900 SPK % spike recovery	0.5793 96%	0.512 N/A	53.78 90%	0.2018 N/A	0.4962 N/A	0.5098 N/A	3.857 96%	7.747 93%	12.79 103%	1.068 89%	25.97 97%	1.016 95%	0.486 N/A	0.4814 96%
10/20/00	15:00	CW	GKM-8RED 092900 SPK DIL	bpql 0.5192	0.0179 0.5413	57.57 71.72	bpql 0.2102	bpql 0.4974	bpql 0.5314	0.9475 1.44	3.302 7.964	13.61 18.33	0.8872 1.342	16.07 25.19	0.172 1.15	bpql 0.496	0.0033 0.4997
10/20/00	15:04	CW	GKM-8RED 092900 SPK % spike recovery	N/A	105%	71%	N/A	N/A	N/A	99%	93%	94%	91%	91%	98%	N/A	99%
10/20/00	13:49	CW	GKM-9BLUE 092900 SPK DIL	0.0384 0.5418	0.0921 0.5971	43.7 59.5	0.0014 0.2087	bpql 0.4916	bpql 0.5234	4.597 5.121	4.891 9.44	11.97 16.99	0.5423 0.9865	17.75 27.38	0.104 1.026	bpql 0.493	0.002 0.4895
10/20/00	13:53	CW	GKM-9BLUE 092900 SPK % spike recovery	101%	101%	79%	104%	N/A	N/A	105%	91%	100%	89%	96%	92%	N/A	98%

EPA Method 200.15 Sample Fortified Matrix Spikes by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
10/26/00	12:31	CW	GKM-3BLUE 093000 SPK DIL	bpql 0.5898	0.0132 0.61	69.74 85.32	0.0024 0.2436	bpql 0.5556	bpql 0.608	0.0322 0.5985	6.502 11.21	13.48 18.76	0.0068 0.5553	21.27 30.58	0.035 1.12	bpql 0.562	0.3074 0.8737
10/26/00	12:35	CW	GKM-3BLUE 093000 SPK % spike recovery	N/A 119%	78%	121%	N/A	N/A 113%	N/A 94%	N/A 106%	N/A 110%	N/A 93%	N/A 109%	N/A 109%	N/A N/A	N/A 113%	
10/26/00	13:36	CW	GKM-3RED 093000 SPK DIL	bpql 0.5483	0.0103 0.5613	70.23 86.21	bpql 0.2238	bpql 0.5154	bpql 0.5585	0.0395 0.5645	6.469 11.14	13.35 18.48	0.0046 0.5116	20.09 28.93	0.035 1.053	bpql 0.519	0.1472 0.6745
10/26/00	13:40	CW	GKM-3RED 093000 SPK % spike recovery	N/A 110%	80%	N/A	N/A	N/A 105%	N/A 93%	N/A 103%	N/A 101%	N/A 88%	N/A 102%	N/A N/A	N/A 105%		
10/26/00	14:52	CW	GKM-1GREENB 093000 1/2 dil SPK DIL	bpql 0.5494	bpql 0.5206	43.71 60.92	bpql 0.2115	bpql 0.4985	bpql 0.5415	0.1636 0.6607	2.683 7.556	11.04 16.4	2.232 2.677	8.437 16.52	bpql 0.938	bpql 0.496	0.0037 0.5038
10/26/00	14:56	CW	GKM-1GREENB 093000 1/2 dil SPK % spike recovery	N/A N/A	86% N/A	N/A 86%	N/A	N/A N/A	N/A 99%	N/A 97%	N/A 107%	N/A 89%	N/A 81%	N/A N/A	N/A N/A	N/A 100%	
12/1/00	11:58	TMC	GKW-3 062900 1/10 dil SPK DIL	n/a n/a	n/a n/a	8.061 25.9	n/a n/a	n/a n/a	bpql 0.4971	n/a n/a	0.7151 5.419	1.45 6.137	0.0422 0.5402	2.292 11.56	n/a n/a	n/a n/a	0.0022 0.4991
12/1/00	12:02	TMC	GKW-3 062900 1/10 dil SPK % spike recovery	n/a n/a	n/a n/a	89% 94%	n/a n/a	n/a n/a	N/A n/a	N/A 94%	N/A 100%	N/A 93%	N/A n/a	N/A n/a	N/A n/a	0.4991 99%	
12/1/00	12:58	TMC	MLS-3W 082800 1/10 dil SPK DIL	n/a n/a	n/a n/a	9.644 28.04	n/a n/a	n/a n/a	bpql 0.4093	n/a n/a	0.5592 5.602	2.251 7.175	0.0077 0.4173	1.46 11.32	n/a n/a	n/a n/a	0.0018 0.4109
12/1/00	13:02	TMC	MLS-3W 082800 1/10 dil SPK % spike recovery	n/a n/a	n/a n/a	92% 92%	n/a n/a	n/a n/a	N/A N/A	n/a 101%	N/A 98%	N/A 82%	N/A 99%	n/a n/a	n/a n/a	0.4109 82%	
<i>bpql = below the probable quantitative limit</i>																	

EPA Method 200.15 Laboratory Fortified Matrix Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
8/2/00	15:30	CW	CAL BLANK	0.0022	0	-0.0011	-0.0003	0.0007	0.0003	0.0003	0.0329	-0.0011	0	-0.025	-1E-04	-7E-04	0.0002
8/2/00	15:38	CW	CAL BLANK_RQ % spike recovery	0.508 101%	0.4942 99%	21.33 107%	0.2083 104%	0.5339 107%	0.5137 103%	0.5446 109%	5.302 105%	5.17 103%	0.5318 106%	11.11 111%	1.13 113%	0.5351 107%	0.5208 104%
8/4/00	16:54	CW	CAL BLANK	-0.0006	0.0001	-0.0007	-0.0004	-2E-04	-0.0001	0.0001	-0.006	0.0005	0.0001	0.0398	-0.002	-7E-04	0.0002
8/4/00	16:59	CW	CAL BLANK_RQ % spike recovery	0.5193 104%	0.5075 101%	20.51 103%	0.2091 105%	0.52 104%	0.5135 103%	0.5158 103%	5.168 103%	5.211 104%	0.516 103%	10.87 108%	1.027 103%	0.5114 102%	0.512 102%
8/4/00	16:54	CW	CAL BLANK	-0.0006	0.0001	-0.0007	-0.0004	-2E-04	-0.0001	0.0001	-0.006	0.0005	0.0001	0.0398	-0.002	-7E-04	0.0002
8/4/00	17:08	CW	CAL BLANK_RQ % spike recovery	0.5212 104%	0.5128 103%	20.28 101%	0.2137 107%	0.5191 104%	0.5138 103%	0.5236 105%	5.132 103%	5.147 103%	0.5237 105%	10.35 103%	1.05 105%	0.5192 104%	0.5161 103%
8/7/00	15:36	CW	CAL BLANK	0.0003	-0.0002	0.0003	-0.0003	0.0003	-0.0002	0.0006	0.0291	0.0017	0	0.1029	-0.002	0.0003	0.0001
8/7/00	15:40	CW	CAL BLANK_RQ % spike recovery	0.513 103%	0.4916 98%	19.98 100%	0.2102 105%	0.5175 103%	0.5108 102%	0.5365 107%	5.154 102%	5.064 101%	0.5289 106%	10.08 100%	1.073 108%	0.5297 106%	0.5207 104%
8/8/00	17:08	CW	CAL BLANK	0.0003	-0.0002	0.0036	-0.0008	0.0009	0.0007	-0.0012	-0.037	0.0069	0	0.1017	0.0016	-0.001	0.0005
8/8/00	17:12	CW	CAL BLANK_RQ % spike recovery	0.5348 100%	0.54 100%	21.31 100%	0.2119 100%	0.5338 100%	0.5217 100%	0.5367 101%	5.364 100%	5.363 100%	0.5405 100%	10.85 99%	1.075 100%	0.53 100%	0.524 100%
8/10/00	16:29	CW	CAL BLANK	-0.0003	-0.0002	-0.0006	-0.0003	-6E-04	-0.0014	-0.0001	0.0169	0.0099	0	-0.017	0.0003	-8E-04	-3E-04
8/10/00	16:33	CW	CAL BLANK_RQ % spike recovery	0.491 98%	0.464 93%	19.36 97%	0.2004 100%	0.4963 99%	0.4888 98%	0.5107 102%	5.052 101%	4.909 98%	0.4987 100%	10.36 104%	1.002 100%	0.4986 100%	0.4879 98%
8/11/00	17:53	CW	CAL BLANK	0.0006	-0.0011	-0.0006	-0.0001	0.0007	0.0001	-0.0001	-0.017	0.0053	0	0.0098	-0.001	-0.002	0
8/11/00	17:57	CW	CAL BLANK_RQ % spike recovery	0.5204 104%	0.514 103%	19.93 100%	0.2144 107%	0.5187 104%	0.5143 103%	0.525 105%	5.086 102%	5.1 102%	0.5191 104%	10.78 108%	1.03 103%	0.5177 104%	0.5176 104%

EPA Method 200.15 Laboratory Fortified Matrix Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
9/20/00	13:49	CW	CAL BLANK	0.0005	0.0006	-0.0019	-0.0003	0.0001	-0.001	-0.0001	0.077	0.0096	0	-0.048	-0.001	-0.002	-7E-04
9/20/00	13:56	CW	CAL BLANK_RQ	0.5454	0.5299	19.51	0.2202	0.5477	0.5506	0.5617	5.195	5.017	0.5492	10.1	1.129	0.5524	0.5425
			% spike recovery	109%	106%	98%	110%	110%	110%	112%	102%	100%	110%	101%	113%	111%	109%
9/21/00	15:15	CW	CAL BLANK	0.0002	0	-0.001	-0.0003	-7E-04	-0.0005	0.0004	0.0102	0.0083	0	0.0522	0.0012	-0.001	-4E-04
9/21/00	15:24	CW	CAL BLANK_RQ	0.5262	0.5184	20.35	0.2131	0.5307	0.529	0.5468	5.34	5.167	0.5344	10.34	1.121	0.5389	0.5253
			% spike recovery	105%	104%	102%	107%	106%	106%	109%	107%	103%	107%	103%	112%	108%	105%
9/25/00	14:19	CW	CAL BLANK	-0.0003	-0.0002	0.0002	0	-2E-04	0.0001	0	0	0.0061	0	-0.063	0.0002	0.0005	0
9/25/00	14:23	CW	CAL BLANK_RQ	0.5364	0.528	20.26	0.2162	0.5315	0.5329	0.5419	5.256	5.177	0.5396	10.31	1.069	0.5383	0.5335
			% spike recovery	107%	106%	101%	108%	106%	107%	108%	105%	103%	108%	104%	107%	108%	107%
9/26/00	14:23	CW	CAL BLANK	-0.0009	0	0.0002	-0.0001	-3E-04	-0.0006	0	0.0255	0.0005	-1E-04	-0.055	0.0007	-0.002	-3E-04
9/26/00	14:27	CW	CAL BLANK_RQ	0.5219	0.526	21.23	0.2143	0.5368	0.5243	0.5503	5.452	5.307	0.5388	10.93	1.126	0.542	0.5313
			spike added	0.5	0.5	20	0.2	0.5	0.5	0.5	5	5	0.5	10	1	0.5	0.5
			% spike recovery	105%	105%	106%	107%	107%	105%	110%	109%	106%	108%	110%	113%	109%	106%
10/18/00	14:32	CW	CAL BLANK	0.0001	-0.0001	0.0001	-0.0001	-3E-04	0.0012	0.0003	0.021	0.0015	0	0.0014	0.0001	-0.003	-1E-04
10/18/00	14:36	CW	CAL BLANK_RQ	0.5234	0.4672	19.05	0.2192	0.5459	0.5359	0.5623	4.963	4.754	0.534	9.966	1.139	0.547	0.5301
			% spike recovery	105%	93%	95%	110%	109%	107%	112%	99%	95%	107%	100%	114%	110%	106%
10/19/00	16:13	CW	CAL BLANK	-0.0004	-0.001	-0.0024	-0.0001	-4E-04	-0.0001	-0.0004	0.0159	0.0073	0	-0.015	-1E-04	-0.001	-4E-04
10/19/00	16:19	CW	CAL BLANK_RQ	0.5115	0.4355	20.65	0.2059	0.5249	0.5209	0.5213	5.304	5.214	0.5049	10.9	1.025	0.5098	0.4983
			% spike recovery	102%	87%	103%	103%	105%	104%	104%	106%	104%	101%	109%	103%	102%	100%
10/20/00	13:57	CW	CAL BLANK	0	-0.0002	-0.0021	-0.0002	-5E-04	-0.001	0.0009	0.0423	-0.0015	0	0.0218	-3E-04	-0.001	-4E-04
10/20/00	14:02	CW	CAL BLANK_RQ	0.5039	0.4259	19.57	0.2044	0.5066	0.5116	0.5088	5.197	5.073	0.4908	10.29	1.015	0.4964	0.4872
			% spike recovery	101%	85%	98%	102%	101%	103%	102%	103%	101%	98%	103%	102%	99%	98%

EPA Method 200.15 Laboratory Fortified Matrix Blanks by ICAP-ES

ICAP-ES Analysis Date	ICAP-ES Analysis Time	Analyst	Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
			Probable Quantitative Limit Amount Spike Added	0.01 0.5	0.005 0.5	0.02 20	0.001 0.2	0.005 0.5	0.003 0.5	0.005 0.5	0.2 5	0.1 5	0.0005 0.5	0.5 10	0.01 1	0.01 0.5	0.001 0.5
10/26/00	13:44	CW	CAL BLANK	-0.0008	-0.0006	0.0005	-0.0001	-2E-04	-0.0003	0	0.0235	0.0084	0	-0.015	-9E-04	0.0002	-7E-04
10/26/00	13:48	CW	CAL BLANK_RQ	0.5432	0.4609	20.42	0.219	0.5337	0.5458	0.5397	5.375	5.348	0.5217	10.23	1.059	0.5267	0.5224
			% spike recovery	109%	92%	102%	110%	107%	109%	108%	107%	107%	104%	102%	106%	105%	105%
10/30/00	18:45	TMC	CAL BLANK	-0.0006	-0.0007	0.0037	-0.0001	0.0002	0.0004	-0.0004	-0.046	0.0045	0.0001	0.0341	0.0004	0.0012	0.0007
10/30/00	18:49	TMC	CAL BLANK_RQ	0.4948	0.4906	21.04	0.2026	0.5065	0.4963	0.5034	5.292	5.279	0.4924	10.69	1.011	0.4983	0.4866
			% spike recovery	99%	98%	105%	101%	101%	99%	101%	107%	105%	98%	107%	101%	99%	97%
10/31/00	12:56	CW	CAL BLANK	0.0014	-0.0003	0.0016	0	-4E-04	0.0002	-0.0002	0.0005	-0.001	0.0005	-0.004	-9E-04	-3E-04	-1E-04
10/31/00	13:04	CW	CAL BLANK_RQ	0.5447	0.49	19.72	0.2215	0.5632	0.5516	0.5525	4.854	4.885	0.54	9.975	1.124	0.545	0.5304
			% spike recovery	109%	98%	99%	111%	113%	110%	111%	97%	98%	108%	100%	112%	109%	106%
12/1/00	11:47	CW	CAL BLANK	n/a	n/a	0.0053	n/a	n/a	-0.0004	n/a	0.0215	0.0091	0.0007	0.0313	n/a	n/a	0.0002
12/1/00	12:07	CW	CAL BLANK_RQ	n/a	n/a	19.31	n/a	n/a	0.5317	n/a	5.09	4.983	0.5279	10.15	n/a	n/a	0.5281
			% spike recovery	n/a	n/a	97%	n/a	n/a	106%	n/a	101%	99%	105%	101%	n/a	n/a	106%
<i>bpql = below the probable quantitative limit</i>																	

APPENDIX A – Water Resources

A.7 Alkalinity, Anion and Coliform Data

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Suction Lysimeter Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
ALYSD2-2 071700	7/17/00	290	no analysis	31.8	3.4	68.4
ALYSS2-2 071700	7/17/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSD-2 071700	7/17/00	85	no analysis	8.6	2.4	45.9
LYSD2-1 071700	7/17/00	665	no analysis	27.6	bdl	451.7
LYSD-3 071700	7/17/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSS-1 071700	7/17/00	445	no analysis	178	bdl	2891.7
LYSS-2 071700	7/17/00	no analysis	no analysis	11.6	3.4	46.3
LYSS-3 071700	7/17/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSS-5 071700	7/17/00	15	no analysis	32.5	1.9	418.4
LYSVD-1 071700	7/17/00	365	no analysis	13.4	bdl	176.5
LYSVD2-2 071700	7/17/00	100	no analysis	7.4	1.2	41.5
LYSVD2-3 071700	7/17/00	180	no analysis	13.9	0.3	95.4
LYSVD-5 071700	7/17/00	no analysis	no analysis	no analysis	no analysis	no analysis
ALYSD2-3 071800	7/18/00	270	<1 COL/100 ML	41.3	30.3	82.9
ALYSS2-3 071800	7/18/00	305	no analysis	32.7	22.1	90.9
BLYSD-2 072000	7/20/00	270	no analysis	47.8	1.6	120.6
BLYSS-2 072000	7/20/00	no analysis	P/A- EC-	no analysis	no analysis	no analysis
LYSD2-9 072000	7/20/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSD-4 072000	7/20/00	105	no analysis	55.9	24.9	824.9
LYSS2-4 072000	7/20/00	95	no analysis	188.1	66.7	5619.6
LYSVD2-8 072000	7/20/00	205	no analysis	8	0.8	40.1
LYSVD-9 072000	7/20/00	225	no analysis	9.7	0.3	58.1
LYSD-7 072400	7/24/00	5	no analysis	10.1	18.4	593.2
LYSS-7 072400	7/24/00	no analysis	no analysis	16.1	8.8	732
LYSVD2-7 072400	7/24/00	15	no analysis	18.5	5.9	550
LYSVD-6 072400	7/24/00	no analysis	no analysis	19.9	0.2	122.4
ALYSD-1 081400	8/14/00	225	<1 COL/100 ML	53.1	5.3	97.1
ALYSD-1 082800	8/28/00	355	no analysis	59.2	6.07	137.4
LYSD2-1 082800	8/28/00	720	no analysis	21.6	bdl	398.8
LYSVD-1 082800	8/28/00	355	no analysis	11.7	bdl	144.7
LYSD-2 082900	8/29/00	70	no analysis	5.2	2.53	38.5
LYSD2-9 082900	8/29/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSD-7 082900	8/29/00	no analysis	no analysis	no analysis	no analysis	no analysis

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Suction Lysimeter Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
LYSD-8 082900	8/29/00	205	no analysis	7.9	3.33	84.7
LYSVD2-2 082900	8/29/00	80	no analysis	5.5	1.22	41.2
LYSVD2-7 082900	8/29/00	15	no analysis	10.2	9.28	489.6
LYSVD2-8 082900	8/29/00	235	no analysis	7.1	0.91	77
LYSVD-9 082900	8/29/00	205	no analysis	8.4	0.3	56.3
LYSD2-5 083000	8/30/00	15	no analysis	24.2	4.4	578.7
LYSD-3 083000	8/30/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSD-4 083000	8/30/00	125	no analysis	37.3	21.7	751.1
LYSS2-4 083000	8/30/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSVD2-3 083000	8/30/00	260	no analysis	10.5	0.2	93
LYSVD-4 083000	8/30/00	175	no analysis	8.5	0.6	145.8
LYSD2-9 092900	9/29/00	no analysis	no analysis	13.5	1.9	165.6
LYSD-7 092900	9/29/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSD-8 092900	9/29/00	165	no analysis	7.3	3.1	114.3
LYSVD2-7 092900	9/29/00	30	no analysis	7.5	10.8	371.1
LYSVD2-8 092900	9/29/00	155	no analysis	7	1.2	127.3
LYSVD-9 092900	9/29/00	150	no analysis	6.2	0.6	46.3
LYSD-2 093000	9/30/00	55	no analysis	4.9	2.7	41.2
LYSD2-1 093000	9/30/00	725	no analysis	22.5	bdl	352.5
LYSD2-5 093000	9/30/00	10	no analysis	24.4	4.4	576.8
LYSD-3 093000	9/30/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSS-1 093000	9/30/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSVD-1 093000	9/30/00	305	no analysis	12	bdl	120.6
LYSVD2-2 093000	9/30/00	65	no analysis	5.5	1.9	49.3
LYSVD2-3 093000	9/30/00	140	no analysis	10.3	0.6	93
ALYSS-1 100100	10/1/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSD-4 100100	10/1/00	85	no analysis	31.8	21.6	587.9
LYSS2-4 100100	10/1/00	no analysis	no analysis	no analysis	no analysis	no analysis
LYSVD-4 100100	10/1/00	190	no analysis	7.9	1.2	152.3

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Multi-Level Well Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
GKM-1GREEN 061900	6/19/00	235	no analysis	12.7	bdl	108.4
GKM-1GREEN 071700	7/17/00	no analysis	no analysis	no analysis	no analysis	no analysis
GKM-1GREEN 082800	8/28/00	210	no analysis	9.1	bdl	96.4
GKM-1GREENB 093000	9/30/00	235	no analysis	13	bdl	112.8
GKM-1GREENC 093000	9/30/00	230	no analysis	13	bdl	111.9
GKM-1RED 061900	6/19/00	215	no analysis	11.9	0.4	110.3
GKM-1RED 071700	7/17/00	190	no analysis	10	0.2	95.6
GKM-1RED 082800	8/28/00	240	no analysis	9.1	0.14	90.8
GKM-1REDA 093000	9/30/00	235	no analysis	12	0.2	101.9
GKM-1REDB 093000	9/30/00	230	no analysis	12	0.2	102.2
GKM-1REDC 093000	9/30/00	220	no analysis	12	0.2	102.3
GKM-1W 062900	6/29/00	175	no analysis	10.8	0.6	99.3
GKM-1W 071700	7/17/00	190	no analysis	10.3	0.2	97.6
GKM-1W 082800	8/28/00	215	no analysis	9.3	0.15	91.6
GKM-1WA 093000	9/30/00	230	no analysis	11.8	0.2	100.1
GKM-1WB 093000	9/30/00	240	no analysis	11.6	0.2	100.8
GKM-1WC 093000	9/30/00	35	no analysis	11.8	0.2	100.4
GKM-2BLUE 062000	6/20/00	140	no analysis	4.3	0.1	24.3
GKM-2BLUE 071700	7/17/00	150	no analysis	5	0.4	27.8
GKM-2BLUE 082900	8/29/00	125	no analysis	4.7	0.31	25.8
GKM-2BLUE 093000	9/30/00	150	no analysis	4.6	0.3	25.1
GKM-2W 062800	6/28/00	130	no analysis	4.7	0.4	27.3
GKM-2W 071700	7/17/00	130	no analysis	5.3	0.4	28.4
GKM-2W 071700 Split	7/17/00	135	no analysis	5.2	0.4	28.2
GKM-2W 082900	8/29/00	110	no analysis	4.8	0.32	25.8
GKM-2W 093000	9/30/00	135	no analysis	4.9	0.4	26.4
GKM-2W FD 071700	7/17/00	140	no analysis	5.3	0.4	28.5
GKM-3BLUE 061900	6/19/00	220	no analysis	9	0.2	82.6
GKM-3BLUE 071700	7/17/00	215	no analysis	10.7	0.3	98.5
GKM-3BLUE 083000	8/30/00	215	no analysis	9.6	bdl	78.4
GKM-3BLUE 093000	9/30/00	215	no analysis	11.2	0.2	81
GKM-3GREEN 061900	6/19/00	245	no analysis	8.7	bdl	58.6

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Multi-Level Well Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
GKM-3GREEN 071700	7/17/00	235	no analysis	10.6	bdl	92.4
GKM-3GREEN 083000	8/30/00	280	no analysis	9.7	bdl	59.4
GKM-3GREEN 093000	9/30/00	250	no analysis	11.4	bdl	52.6
GKM-3RED 061900	6/19/00	225	no analysis	8.9	0.3	91.6
GKM-3RED 061900 Field Dup	6/19/00	220	no analysis	9.4	0.3	92.6
GKM-3RED 061900 Split	6/19/00	195	no analysis	9.3	0.3	92.6
GKM-3RED 071700	7/17/00	215	no analysis	10.9	0.4	99.9
GKM-3RED 083000	8/30/00	205	no analysis	9.9	0.2	87.1
GKM-3RED 093000	9/30/00	205	no analysis	11	0.3	91.4
GKM-3W 062900	6/29/00	no analysis	no analysis	no analysis	no analysis	no analysis
GKM-3W 071900	7/19/00	no analysis	no analysis	10.4	0.4	100.2
GKM-3W 083000	8/30/00	210	no analysis	10.1	0.2	90
GKM-3W 093000	9/30/00	210	no analysis	10.9	0.3	92
GKM-4BLUE 061900	6/19/00	230	no analysis	6.7	0.1	88.3
GKM-4BLUE 072000	7/20/00	260	no analysis	5.7	bdl	91.3
GKM-4BLUE 083000	8/30/00	305	no analysis	6.3	0.2	102
GKM-4BLUE 100100	10/1/00	250	no analysis	7.2	0.2	97.9
GKM-4GREEN 072000	7/20/00	260	no analysis	5.6	bdl	93.1
GKM-4GREEN 100100	10/1/00	255	no analysis	7.1	bdl	102
GKM-4RED 061900	6/19/00	245	no analysis	6	0.2	84.2
GKM-4RED 072000	7/20/00	255	no analysis	5.7	bdl	90.9
GKM-4RED 083000	8/30/00	265	no analysis	6.4	0.2	100.6
GKM-4RED 100100	10/1/00	240	no analysis	7.2	0.3	96.8
GKM-4W 062800	6/28/00	220	no analysis	5.6	0.5	83.1
GKM-4W 072000	7/20/00	245	no analysis	5.6	0.3	89.5
GKM-4W 083000	8/30/00	385	no analysis	6.2	0.3	94.8
GKM-4W 100100	10/1/00	240	no analysis	7.2	0.4	92.6
GKM-5BLUE 061900	6/19/00	162	no analysis	8.8	0.2	106.7
GKM-5BLUE 071700	7/17/00	205	no analysis	9.4	0.4	97.4
GKM-5BLUE 083000	8/30/00	220	no analysis	8.9	0.4	99.1
GKM-5BLUE 093000	9/30/00	230	no analysis	9.7	0.3	96.2
GKM-5GREEN 061900	6/19/00	365	no analysis	8.7	bdl	116.1

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Multi-Level Well Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
GKM-5W 062900	6/29/00	no analysis	no analysis	no analysis	no analysis	no analysis
GKM-5W 071900	7/19/00	no analysis	no analysis	no analysis	no analysis	no analysis
GKM-5W 083000	8/30/00	210	no analysis	9.5	0.2	93.8
GKM-5W 093000	9/30/00	220	no analysis	9.7	0.3	94.7
GKM-6BLUE 062000	6/20/00	175	no analysis	10.7	bdl	88.2
GKM-6BLUE 062600	6/26/00	180	no analysis	11.2	bdl	96.2
GKM-6BLUE 072400	7/24/00	no analysis	no analysis	no analysis	no analysis	no analysis
GKM-6BLUE 082900	8/29/00	no analysis	no analysis	no analysis	no analysis	no analysis
GKM-6BLUE 092900	9/29/00	115	no analysis	6.1	bdl	28.3
GKM-6GREEN 062000	6/20/00	215	no analysis	14.6	bdl	108.6
GKM-6GREEN 092900	9/29/00	130	no analysis	7.1	bdl	49.9
GKM-6W 062600	6/26/00	130	no analysis	6.5	bdl	30
GKM-6W 072400	7/24/00	125	no analysis	6.1	bdl	29.6
GKM-6W 072400	7/24/00	125	no analysis	6.1	bdl	29.6
GKM-6W 082900	8/29/00	135	no analysis	5.8	bdl	29.5
GKM-6W 092900	9/29/00	110	no analysis	5.7	bdl	29.3
GKM-7BLUE 062600	6/26/00	230	no analysis	6.1	bdl	70.7
GKM-7BLUE 062600 Field Dup	6/26/00	220	no analysis	6.3	bdl	73.8
GKM-7BLUE 062600 Split	6/26/00	220	no analysis	6.1	bdl	70.7
GKM-7BLUE 072400	7/24/00	0	no analysis	6.1	bdl	47.6
GKM-7BLUE 082900	8/29/00	190	no analysis	6.2	bdl	44.9
GKM-7BLUE 092900	9/29/00	150	no analysis	8.1	0.4	96.4
GKM-7RED 082900	8/29/00	185	no analysis	6.2	bdl	36
GKM-7RED 092900	9/29/00	160	no analysis	8.2	bdl	85
GKM-7W 062600	6/26/00	185	no analysis	6.3	bdl	40.5
GKM-7W 072400	7/24/00	195	no analysis	6.3	bdl	38.1
GKM-7W 082900	8/29/00	205	no analysis	6.3	bdl	35.7
GKM-7W 092900	9/29/00	180	no analysis	7.7	bdl	71.8
GKM-8BLUE 062600	6/26/00	245	no analysis	7.2	bdl	21.8
GKM-8BLUE 072000	7/20/00	250	no analysis	6.5	bdl	22.8
GKM-8BLUE 082900	8/29/00	200	no analysis	6.4	bdl	30.4
GKM-8BLUE 092900	9/29/00	150	no analysis	6.7	bdl	33.6

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Multi-Level Well Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
GKM-8GREEN 062600	6/26/00	245	no analysis	7.5	bdl	9.9
GKM-8GREEN 092900	9/29/00	220	no analysis	6.8	bdl	20.2
GKM-8RED 062600	6/26/00	235	no analysis	6.9	bdl	31.6
GKM-8RED 072000	7/20/00	245	no analysis	6.4	bdl	28.8
GKM-8RED 082900	8/29/00	235	no analysis	6.5	bdl	30.1
GKM-8RED 092900	9/29/00	195	no analysis	7	bdl	33
GKM-8W 062600	6/26/00	NS	no analysis	NS	NS	NS
GKM-8W 072000	7/20/00	205	no analysis	6.2	bdl	34.8
GKM-8W 082900	8/29/00	210	no analysis	6.3	bdl	34.9
GKM-8W 092900	9/29/00	185	no analysis	7	bdl	35
GKM-9BLUE 062600	6/26/00	250	no analysis	5.9	bdl	16.8
GKM-9BLUE 072000	7/20/00	225	no analysis	5.1	bdl	18.2
GKM-9BLUE 082900	8/29/00	200	no analysis	5	bdl	20.1
GKM-9BLUE 092900	9/29/00	175	no analysis	5	bdl	21
GKM-9GREEN 062600	6/26/00	270	no analysis	6.7	bdl	28.1
GKM-9GREEN 092900	9/29/00	185	no analysis	5.4	bdl	23.3
GKM-9RED 062600	6/26/00	240	no analysis	6	bdl	20.3
GKM-9RED 072000	7/20/00	240	no analysis	5.5	bdl	20.5
GKM-9RED 082900	8/29/00	225	no analysis	5.1	bdl	21.3
GKM-9RED 092900	9/29/00	175	no analysis	5	bdl	21
GKM-9W 062600	6/26/00	195	no analysis	5.6	bdl	24
GKM-9W 072000	7/20/00	200	no analysis	5.2	bdl	24.1
GKM-9W 082900	8/29/00	175	no analysis	5.1	bdl	24.1
GKM-9W 092900	9/29/00	175	no analysis	5.2	bdl	23.4
MLS-3RED 062700	6/27/00	255	no analysis	36	0.6	273.5
MLS-3RED 062700 Field Dup	6/27/00	260	no analysis	30.1	1.2	198.7
MLS-3RED 062700 Split	6/27/00	245	no analysis	35.5	0.7	267.7
MLS-3RED 072000	7/20/00	230	40 COL/100 ML	9.7	0.5	66.6
MLS-3RED 082800	8/28/00	275	no analysis	22.6	2.11	173.6
MLS-3RED 100100	10/1/00	270	1CFU/100 ML	22	0.9	127.6
MLS-3W 062700	6/27/00	210	no analysis	15.4	1	99.8
MLS-3W 072000	7/20/00	190	no analysis	8.9	0.3	62.8

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Multi-Level Well Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
MLS-3W 072000	7/20/00	190	no analysis	8.9	0.3	62.8
MLS-3W 082800	8/28/00	235	no analysis	18.5	3.02	143.6
MLS-3W 100100	10/1/00	265	no analysis	23.1	0.8	131.8
MLS-4RED 062000	6/20/00	295	no analysis	10.2	1	36.8
MLS-4RED 063000	6/30/00	310	no analysis	11	1.2	37.2
MLS-4RED 071800	7/18/00	305	no analysis	12.9	1.1	40
MLS-4RED 082800	8/28/00	310	no analysis	18.1	2.04	51.4
MLS-4RED 100100	10/1/00	285	no analysis	19.7	2.3	53.6
MLS-4W 063000	6/30/00	305	no analysis	10.7	1.2	36.2
MLS-4W 071800	7/18/00	310	<1 COL/100 ML	12.6	1.2	39.3
MLS-4W 082800	8/28/00	300	no analysis	18.4	2.12	51.8
MLS-4W 100100	10/1/00	275	<1CFU/100 ML	19.6	2.3	53.4
MLS-5BLUE 062000	6/20/00	210	no analysis	9.7	bdl	75.8
MLS-5BLUE 062700	6/27/00	230	no analysis	9.5	bdl	79
MLS-5BLUE 071800	7/18/00	285	40 COL/100 ML	9.7	bdl	65.3
MLS-5BLUE 082800	8/28/00	280	no analysis	7.7	bdl	42.7
MLS-5GREEN 062000	6/20/00	230	no analysis	9.8	bdl	86.1
MLS-5GREEN 062700	6/27/00	235	no analysis	9.4	bdl	78.4
MLS-5GREEN 071800	7/18/00	275	no analysis	11.2	bdl	79.4
MLS-5RED 062000	6/20/00	210	no analysis	8	0.2	58.7
MLS-5RED 062000 Field Dup	6/20/00	200	no analysis	8	0.2	58.9
MLS-5RED 062000 Split	6/20/00	200	no analysis	8.1	0.2	58.8
MLS-5RED 062700	6/27/00	225	no analysis	7.9	bdl	61.7
MLS-5RED 071800	7/18/00	260	no analysis	7.9	bdl	48.9
MLS-5RED 082800	8/28/00	255	no analysis	7.6	0.13	41.6
MLS-5RED 100100	10/1/00	255	no analysis	8.3	bdl	42.2
MLS-5W 062700	6/27/00	190	no analysis	7.8	bdl	58.2
MLS-5W 071800	7/18/00	275	14 COL/100 ML	8	0.1	49.4
MLS-5W 082800	8/28/00	275	no analysis	7.7	0.11	42
MLS-5W 100100	10/1/00	250	<1COL/100 ML	8.2	bdl	41.4
MW-1 050100	5/1/00	327	P/A-, EC-	10.1	0.5	29.2
MW-1 062900	6/29/00	310	no analysis	10.4	0.5	26.8

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Monitoring Well Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
MW-1 071800	7/18/00	335	<1 COL/100 ML	10.6	0.3	26.8
MW-1 083000	8/30/00	335	no analysis	9.9	0.3	26.2
MW-1 100100	10/1/00	320	<1CFU/100 ML	10.8	0.3	25.3
MW-2 050100	5/1/00	290	P/A-, EC-	11.6	1.2	49.2
MW-2 060200	6/2/00	no analysis	no analysis	no analysis	no analysis	no analysis
MW-2 063000	6/30/00	270	no analysis	13	0.5	51.6
MW-2 071800	7/18/00	275	<1 COL/100 ML	13	0.6	52
MW-2 083000	8/30/00	290	P/A- EC-	12.1	0.5	52.5
MW-2 100100	10/1/00	285	<1CFU/100 ML	13	0.5	53.1
MW-3 050100	5/1/00	205	P/A-, EC-	6.4	0.1	34.1
MW-4 050100	5/1/00	295	P/A-, EC-	9.5	1.1	35.2
MW-4 063000	6/30/00	315	no analysis	10.1	1.2	34.3
MW-4 063000 Field Dup	6/30/00	325	no analysis	10	1.2	35
MW-4 063000 Split	6/30/00	305	no analysis	9.9	1.2	34.2
MW-4 071800	7/18/00	315	690 COL/100 ML	12	1.2	38.1
MW-4 082800	8/28/00	295	P/A+ EC-	16.5	1.94	47.8
MW-4 082800 Field Dup	8/28/00	305	no analysis	16.5	1.95	47.9
MW-4 082800 Split	8/28/00	300	no analysis	16.4	1.94	47.7
MW-4 100100	10/1/00	290	579 COL/100 ML	18.6	2.2	49.8
MW-4 100100 Field Dup	10/1/00	280	no analysis	18.7	2.2	50.1
MW-4 100100 Split	10/1/00	275	no analysis	18.5	2.2	49.9
MW-5 050100	5/1/00	250	P/A+, EC-	6	0.4	32.6
MW-5 050100 Field Dup	5/1/00	240	P/A-, EC-	6	0.4	32.7
MW-5 050100 Split	5/1/00	270	no analysis	6	0.4	32.6
MW-5 060200	6/2/00	no analysis	no analysis	no analysis	no analysis	no analysis
MW-5 062700	6/27/00	215	no analysis	6.9	0.4	44.3
MW-5 071800	7/18/00	270	<1 COL/100 ML	7.6	0.6	38.9
MW-5 071800 Field Dup	7/18/00	255	no analysis	7.5	0.6	39.1
MW-5 071800 Split	7/18/00	270	no analysis	7.5	0.6	39
MW-5 082800	8/28/00	260	P/A+ EC-	7.6	0.37	42.3
MW-5 100100	10/1/00	260	12 CFU/100 ML	8.1	0.2	42.1
GKW-1 062800	6/28/00	140	no analysis	18.8	1.1	72.1

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Monitoring Well Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
GKW-1 071900	7/19/00	170	no analysis	18.8	1.1	69.9
GKW-1 083000	8/30/00	150	no analysis	17.3	1	73.9
GKW-1 093000	9/30/00	155	no analysis	16.1	1	75.9
GKW-1 093000 Field Dup	9/30/00	165	no analysis	16.1	1	75.7
GKW-1 093000 Split	9/30/00	315	no analysis	16.1	1	75.7
GKW-10 063000	6/30/00	285	no analysis	10.8	bdl	43.9
GKW-10 071800	7/18/00	275	<1 COL/100 ML	11.8	bdl	51.3
GKW-10 082800	8/28/00	280	no analysis	9.1	0.07	31.1
GKW-10 100100	10/1/00	290	<1CFU/100 ML	7.9	bdl	15.8
GKW-11 063000	6/30/00	255	no analysis	5.4	0.2	31.2
GKW-11 071800	7/18/00	240	4 COL/100 ML	25.6	0.3	48
GKW-11 082800	8/28/00	255	P/A- EC-	9.9	0.56	40
GKW-11 100100	10/1/00	240	<1CFU/100 ML	9.3	0.6	40.4
GKW-2 062800	6/28/00	175	no analysis	9	0.8	91.3
GKW-2 071900	7/19/00	200	no analysis	8.2	0.4	85.4
GKW-2 083000	8/30/00	275	no analysis	9.2	0.9	85.5
GKW-2 083000 Field Dup	8/30/00	285	no analysis	9.2	0.9	85.5
GKW-2 083000 Split	8/30/00	215	no analysis	9.3	0.9	85.6
GKW-3 062900	6/29/00	250	no analysis	8.2	0.4	88.2
GKW-3 071900	7/19/00	240	no analysis	8.2	0.2	88.4
GKW-4 062800	6/28/00	180	no analysis	8.7	0.8	92.8
GKW-4 062800 Field Dup	6/28/00	180	no analysis	8.6	0.8	92.8
GKW-4 071900	7/19/00	185	no analysis	8.5	0.4	84.7
GKW-4 071900 Split	7/19/00	190	no analysis	8.4	0.4	84.8
GKW-4 083000	8/30/00	265	no analysis	8	0.5	93.4
GKW-4 093000	9/30/00	230	no analysis	9.6	0.6	94.1
GKW-5 062900	6/29/00	155	no analysis	11.3	0.2	87.5
GKW-5 071900	7/19/00	230	no analysis	9.2	0.3	86.4
GKW-5 082800	8/28/00	205	no analysis	9.5	0.67	78.2
GKW-7 062900	6/29/00	150	no analysis	7.2	0.1	32.2
GKW-7 072000	7/20/00	160	no analysis	6.8	bdl	31.9
GKW-7 072000 Field Dup	7/20/00	155	no analysis	6.8	bdl	31.8

Alkalinity, Coliform, and EPA Method 300.0 Anion by Ion Chromatography – Monitoring Well, Surface Water and Other Samples

Sample Name	Collection Date	Alkalinity (mg/L CaCO ₃)	Coliform	Cl ⁻ (ppm)	N in NO ₃ ⁻ (ppm)	SO ₄ ²⁻ (ppm)
GKW-7 072000 Split	7/20/00	160	no analysis	6.8	bdl	31.8
GKW-7 083000	8/30/00	160	no analysis	6.5	bdl	27.8
GKW-7 093000	9/30/00	175	no analysis	6.3	bdl	27.5
GKW-8 062900	6/29/00	115	no analysis	8	0.6	35.6
GKW-8 062900 Field Dup	6/29/00	120	no analysis	8.1	0.6	35.6
GKW-8 062900 Split	6/29/00	105	no analysis	8	0.6	35.7
GKW-8 071900	7/19/00	140	no analysis	7.4	0.5	35.5
GKW-8 082900	8/29/00	110	no analysis	7.7	0.45	35.8
GKW-8 092900	9/29/00	120	no analysis	7.5	0.5	35.1
GKW-8 092900 Field Dup	9/29/00	125	no analysis	7.5	0.5	35.1
GKW-8 092900 Split	9/29/00	110	no analysis	7.6	0.5	35.1
GKW-9 062900	6/29/00	235	no analysis	11	0.2	82.4
GKW-9 072400	7/24/00	260	no analysis	13	bdl	56.6
GKW-9 072400 Field Dup	7/24/00	315	no analysis	13.1	bdl	56.5
GKW-9 072400 Split	7/24/00	315	no analysis	13	bdl	56.6
GKW-9 082900	8/29/00	305	no analysis	11.5	bdl	68.1
GKW-9 082900 Field Dup	8/29/00	285	no analysis	11.5	bdl	68.1
GKW-9 082900 Split	8/29/00	265	no analysis	11.5	bdl	68.2
GKW-9 093000	9/30/00	180	no analysis	8.7	bdl	100.6
SW-1 060100	6/1/00	no analysis	no analysis	no analysis	no analysis	no analysis
SW-2 060100	6/1/00	no analysis	no analysis	no analysis	no analysis	no analysis
SW-3 070700	7/7/00	no analysis	no analysis	no analysis	no analysis	no analysis
SW-4 070700	7/7/00	no analysis	no analysis	no analysis	no analysis	no analysis
SW-4 070700 Field Dup	7/7/00	no analysis	no analysis	no analysis	no analysis	no analysis
SW-5 070700	7/7/00	no analysis	no analysis	no analysis	no analysis	no analysis
INFLOW 071900	7/19/00	230	575 COL/100 ML	23.6	bdl	45.9
OUTFLOW 071900	7/19/00	220	575 COL/ 100ML	23.7	bdl	45.6
SPRINKLER 072000	7/20/00	no analysis	600 COL/100 ML	22.9	bdl	45.8

bdl = below detection limit

APPENDIX A – Water Resources

A.8 Metals Data

EPA Method 200.15 Surface Water Samples by ICAP-ES

Sample Name		Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit		0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
SW-1 060100	bpql	0.341	360	0.008	bpql	0.410	0.103	250	130	0.602	510	1.6	0.01	0.033	
SW-2 060100	bpql	0.065	120	0.002	bpql	0.069	0.043	14	25	0.026	46	0.15	bpql	0.014	
SW-3 070700	bpql	0.04	64	0.003	bpql	0.187	0.057	7.7	17	0.896	20	0.09	bpql	0.572	
SW-4 070700	bpql	0.279	96	0.007	bpql	0.124	0.145	23	27	0.15	26	0.51	bpql	0.148	
SW-4 FD 070700	bpql	0.26	99	0.006	bpql	0.079	0.136	21	25	0.093	25	0.49	bpql	0.167	
SW-5 070700	bpql	0.095	57	0.002	bpql	0.023	0.074	83	50	0.038	58	2.8	bpql	0.007	
<i>Note: bpql = below probable quantitative limit</i>															

EPA Method 200.15 Monitoring Well Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
GKW-1 062800	0.03	bpql	61	bpql	bpql	bpql	0.053	6.8	11	0.059	25	0.03	bpql	0.002
GKW-1 071900	0.02	bpql	58	bpql	bpql	bpql	0.042	6.4	11	0.048	23	0.03	bpql	0.002
GKW-1 083000	0.01	bpql	59	bpql	bpql	0.007	0.037	6.4	11	0.04	25	0.03	bpql	0.005
GKW-1 093000	0.03	bpql	59	bpql	bpql	bpql	0.038	6.5	12	0.036	24	0.03	bpql	0.003
GKW-1 093000 F. Dup	0.02	bpql	59	bpql	bpql	bpql	0.035	6.4	12	0.033	23	0.02	bpql	0.002
GKW-1 093000 Split	0.02	bpql	60	bpql	bpql	bpql	0.033	6.7	12	0.037	24	0.03	bpql	0.003
GKW-10 063000	bpql	bpql	81	bpql	bpql	bpql	0.025	4.2	26	0.008	17	0.03	bpql	0.002
GKW-10 071800	0.01	bpql	78	bpql	bpql	bpql	0.025	4.0	25	0.010	16	0.04	bpql	0.003
GKW-10 082800	0.05	bpql	76	bpql	bpql	0.004	0.093	4.2	24	0.02	17	0.05	bpql	0.005
GKW-10 100100	bpql	bpql	76	bpql	bpql	0.003	0.02	4.3	25	0.005	18	0.04	bpql	0.004
GKW-11 063000	0.05	bpql	67	bpql	bpql	bpql	0.067	4.3	27	0.054	13	0.03	bpql	0.002
GKW-11 071800	bpql	bpql	68	bpql	bpql	0.003	0.020	3.0	28	0.016	11	0.06	bpql	0.002
GKW-11 082800	bpql	bpql	67	bpql	bpql	bpql	0.019	2.9	27	0.007	13	0.06	bpql	0.002
GKW-11 100100	0.02	bpql	70	bpql	bpql	bpql	0.04	2.9	28	0.007	13	0.06	bpql	0.002
GKW-2 062800	0.01	0.011	79	bpql	bpql	bpql	0.039	7.9	14	0.008	19	0.07	bpql	0.002
GKW-2 071900	bpql	0.012	70	bpql	bpql	0.003	0.031	7.5	12	0.011	17	0.07	bpql	0.003
GKW-2 083000	bpql	0.006	74	bpql	bpql	0.007	0.038	8.4	13	0.013	28	0.05	bpql	0.003
GKW-2 083000 F. Dup	bpql	0.006	71	bpql	bpql	0.004	0.034	8.2	13	0.009	29	0.05	bpql	0.003
GKW-2 083000 Split	bpql	0.007	72	bpql	bpql	bpql	0.033	8.1	13	0.012	28	0.05	bpql	0.003
GKW-3 062900	0.03	0.013	91	bpql	bpql	bpql	0.056	7.5	17	0.488	24	0.06	bpql	0.002
GKW-3 071900	0.02	0.014	84	bpql	bpql	bpql	0.056	6.7	16	0.227	23	0.16	bpql	0.002
GKW-4 062800	bpql	0.015	75	bpql	bpql	bpql	0.040	6.8	12	0.007	25	0.08	bpql	0.003
GKW-4 062800 F. Dup	bpql	0.016	75	bpql	bpql	0.006	0.028	6.9	12	0.004	25	0.08	bpql	0.003
GKW-4 071900	bpql	0.015	69	bpql	bpql	bpql	0.038	6.5	11	0.004	22	0.08	bpql	0.002
GKW-4 071900 Split	bpql	0.016	68	bpql	bpql	bpql	0.027	6.5	11	0.004	22	0.08	bpql	0.003
GKW-4 083000	bpql	0.013	87	bpql	bpql	bpql	0.034	7.5	14	0.006	29	0.07	bpql	0.003
GKW-4 093000	bpql	0.014	81	bpql	bpql	bpql	0.024	7.6	14	bpql	28	0.07	bpql	0.009
GKW-5 062900	0.01	0.039	68	bpql	bpql	0.007	0.036	7.4	14	0.009	19	0.09	bpql	0.003
GKW-5 071900	bpql	0.030	76	bpql	bpql	0.004	0.027	8.1	16	0.009	18	0.09	bpql	0.003
GKW-5 082800	bpql	0.019	73	bpql	bpql	bpql	0.028	7.8	14	0.007	18	0.07	bpql	0.002

EPA Method 200.15 Monitoring Well Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
GKW-7 062900	0.05	bpql	44	bpql	bpql	bpql	0.707	1.8	12	0.605	19	0.01	bpql	0.003
GKW-7 072000	0.04	bpql	44	bpql	bpql	bpql	0.161	1.6	12	0.367	19	0.01	bpql	0.002
GKW-7 072000 F. Dup	0.05	bpql	46	bpql	bpql	0.003	0.170	1.7	12	0.373	20	0.01	bpql	0.003
GKW-7 072000 Split	0.03	bpql	46	bpql	bpql	bpql	0.161	1.7	12	0.385	20	0.01	bpql	0.003
GKW-7 083000	0.03	bpql	43	bpql	bpql	bpql	0.272	1.6	11	0.349	20	0.02	bpql	0.003
GKW-7 093000	0.06	bpql	44	bpql	bpql	bpql	0.066	1.6	12	0.037	20	0.02	bpql	0.001
GKW-8 062900	0.01	bpql	43	bpql	bpql	bpql	0.068	5.1	8.8	0.078	12	0.02	bpql	0.002
GKW-8 062900 F. Dup	0.01	bpql	43	bpql	bpql	bpql	0.060	5.1	8.8	0.083	12	0.02	bpql	0.003
GKW-8 062900 Split	0.02	bpql	42	bpql	bpql	bpql	0.066	5.1	8.6	0.076	12	0.02	bpql	0.002
GKW-8 071900	0.01	bpql	42	bpql	bpql	bpql	0.037	5.2	8.5	0.020	12	0.02	bpql	0.002
GKW-8 082900	0.07	bpql	42	bpql	bpql	bpql	0.209	5.1	8.6	0.014	12	0.03	bpql	0.003
GKW-8 092900	0.02	bpql	41	bpql	bpql	bpql	0.032	5.4	8.4	0.012	12	0.02	bpql	0.002
GKW-8 092900 F. Dup	0.01	bpql	41	bpql	bpql	bpql	0.032	5.5	8.4	0.007	12	0.02	bpql	0.001
GKW-8 092900 Split	0.02	bpql	30	bpql	bpql	bpql	0.021	3.9	6	0.009	9	0.02	bpql	0.001
GKW-9 062900	0.02	bpql	76	bpql	bpql	0.003	0.071	6.7	24	0.568	21	0.02	bpql	0.003
GKW-9 072400	0.02	bpql	86	bpql	bpql	0.005	0.162	7.7	30	0.362	25	0.03	bpql	0.003
GKW-9 072400 F. Dup	0.02	bpql	89	bpql	bpql	0.004	0.127	7.7	30	0.360	25	0.03	bpql	0.006
GKW-9 072400 Split	0.01	bpql	86	bpql	bpql	0.006	0.131	7.7	31	0.370	25	0.03	bpql	0.006
GKW-9 082900	bpql	bpql	81	bpql	bpql	bpql	0.22	6.4	26	0.282	21	0.02	bpql	0.003
GKW-9 082900 F. Dup	bpql	bpql	82	bpql	bpql	bpql	0.186	6.4	26	0.28	21	0.02	bpql	0.002
GKW-9 082900 Split	bpql	bpql	83	bpql	bpql	0.003	0.221	6.4	26	0.284	21	0.02	bpql	0.003
GKW-9 093000	bpql	bpql	65	bpql	bpql	bpql	0.097	5.5	21	0.127	18	bpql	bpql	0.002
MW-1 050100 (+ sample refiltered)	bpql	bpql	81	bpql	bpql	bpql	0.014	2.6	31	0.002	24	0.07	bpql	0.006
MW-1 062900	bpql	bpql	77	bpql	bpql	bpql	0.014	2.5	30	0.003	26	0.06	bpql	0.002
MW-1 071800	bpql	bpql	77	bpql	bpql	bpql	0.015	2.5	29	0.004	24	0.06	bpql	0.002
MW-1 083000	0.02	bpql	79	bpql	bpql	0.004	0.034	2.5	30	0.005	26	0.06	bpql	0.003
MW-1 100100	bpql	bpql	79	bpql	bpql	bpql	0.02	2.6	31	0.003	26	0.06	bpql	0.002
MW-2 050100 (+ sample refiltered)	1.2	bpql	80	bpql	bpql	0.009	0.657	2.4	30	0.209	16	0.61	bpql	0.009
MW-2 060200	bpql	bpql	77	bpql	bpql	bpql	0.017	2.2	29	bpql	16	0.07	bpql	0.001
MW-2 063000	0.03	bpql	81	bpql	bpql	bpql	0.046	2.2	30	0.005	16	0.07	bpql	0.003

EPA Method 200.15 Monitoring Well Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
MW-2 071800	0.17	bpql	77	bpql	bpql	bpql	0.196	2.3	28	0.015	16	0.11	bpql	0.003
MW-2 083000	0.13	bpql	80	bpql	bpql	0.004	0.14	2.4	30	0.009	16	0.07	bpql	0.003
MW-2 100100	0.02	bpql	80	bpql	bpql	bpql	0.05	2.3	31	0.005	16	0.07	bpql	0.003
MW-3 050100 (+ sample refiltered)	bpql	0.008	57	bpql	bpql	0.004	0.010	2.8	15	0.003	13	0.04	bpql	0.006
MW-4 050100 (+ sample refiltered)	0.02	bpql	79	bpql	bpql	bpql	0.033	4.2	28	0.016	25	0.06	bpql	0.005
MW-4 063000	0.03	bpql	79	bpql	bpql	0.004	0.025	4.2	27	0.014	28	0.05	bpql	0.002
MW-4 063000 F. Dup	bpql	bpql	79	bpql	bpql	bpql	0.023	4.2	27	0.013	28	0.05	bpql	0.002
MW-4 063000 Split	bpql	bpql	79	bpql	bpql	bpql	0.022	4.2	27	0.014	27	0.05	bpql	0.002
MW-4 071800	0.01	bpql	76	bpql	bpql	bpql	0.027	4.3	26	0.030	26	0.05	bpql	0.002
MW-4 082800	bpql	bpql	80	bpql	bpql	bpql	0.032	4.5	27	0.029	26	0.06	bpql	0.002
MW-4 082800 F. Dup	bpql	bpql	78	bpql	bpql	bpql	0.027	4.4	27	0.036	27	0.05	bpql	0.001
MW-4 082800 Split	bpql	bpql	78	bpql	bpql	bpql	0.027	4.4	26	0.029	26	0.05	bpql	0.002
MW-4 100100	bpql	bpql	81	bpql	bpql	bpql	0.03	4.6	28	0.103	26	0.05	bpql	0.002
MW-4 100100 F. Dup	bpql	bpql	79	bpql	bpql	bpql	0.03	4.7	28	0.088	27	0.05	bpql	0.002
MW-4 100100 Split	bpql	bpql	78	bpql	bpql	bpql	0.03	4.6	28	0.1	26	0.05	bpql	0.002
MW-5 050100 (+ sample refiltered)	0.26	0.007	73	bpql	bpql	0.003	0.181	3.5	29	0.030	12	0.15	bpql	0.009
MW-5 050100 F. Dup (+ sample refiltered)	0.28	bpql	72	bpql	bpql	0.003	0.181	3.5	28	0.034	13	0.16	bpql	0.006
MW-5 050100 Split (+ sample refiltered)	0.24	0.005	72	bpql	bpql	0.005	0.162	3.5	28	0.027	13	0.14	bpql	0.008
MW-5 060200	bpql	bpql	60	bpql	bpql	bpql	0.018	3.3	24	0.003	11	0.03	bpql	0.002
MW-5 062700	bpql	0.006	62	bpql	bpql	bpql	0.020	3.5	25	0.004	12	0.04	bpql	0.002
MW-5 071800	bpql	bpql	67	bpql	bpql	bpql	0.020	3.8	27	0.004	13	0.04	bpql	0.002
MW-5 071800 F. Dup	bpql	0.005	67	bpql	bpql	bpql	0.020	3.8	27	0.001	12	0.04	bpql	0.002
MW-5 071800 Split	bpql	bpql	68	bpql	bpql	bpql	0.018	3.8	27	0.004	12	0.04	bpql	0.002
MW-5 082800	bpql	bpql	69	bpql	bpql	bpql	0.024	3.9	27	0.004	13	0.04	bpql	0.002
MW-5 100100	bpql	0.005	68	bpql	bpql	0.005	0.03	4.1	28	0.005	13	0.04	bpql	0.004

Note: bpql = below probable quantitative limit

EPA Method 200.15 Multi-Level Piezometer Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)	
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001	
GKM-1GREEN 061900	0.05	bpql	85	bpql	bpql	bpql	0.192	5.3	26	10.6	27	0.02	bpql	0.012	
GKM-1RED 061900	0.01	bpql	94	bpql	bpql	bpql	0.042	5.5	18	1.14	19	0.02	bpql	0.002	
GKM-3BLUE 061900	bpql	0.012	82	0.003	bpql	bpql	0.048	6.5	15	0.099	23	0.03	bpql	0.409	
GKM-3GREEN 061900	0.01	0.008	80	bpql	bpql	bpql	0.041	6.3	15	0.042	23	0.01	bpql	0.100	
GKM-3RED 061900	0.11	0.009	84	bpql	bpql	bpql	0.147	6.6	16	0.027	23	0.04	bpql	0.140	
GKM-3RED 061900 Field Dup	0.02	0.011	84	bpql	bpql	bpql	0.049	6.5	16	0.020	23	0.03	bpql	0.164	
GKM-3RED 061900 Split	0.07	0.010	85	bpql	bpql	bpql	0.102	6.6	16	0.027	23	0.04	bpql	0.141	
GKM-4BLUE 061900	0.07	0.007	81	bpql	bpql	bpql	0.012	0.122	5.4	21	0.385	29	0.03	bpql	0.038
GKM-4RED 061900	0.02	bpql	80	bpql	bpql	bpql	0.008	0.055	5.4	21	0.255	28	0.03	bpql	0.018
GKM-5BLUE 061900	0.07	bpql	71	0.004	bpql	0.030	0.079	4.7	15	1.05	17	0.01	bpql	0.249	
GKM-5GREEN 061900	bpql	0.009	71	0.003	bpql	0.051	0.019	4.5	15	0.026	17	0.02	bpql	0.441	
GKM-2BLUE 062000	0.56	0.009	31	bpql	bpql	bpql	0.024	0.902	6.6	5.5	0.598	27	0.03	bpql	0.019
GKM-6BLUE 062000	0.04	0.007	70	bpql	bpql	bpql	2.56	5.7	17	1.23	23	bpql	bpql	0.005	
GKM-6GREEN 062000	0.08	0.013	72	bpql	bpql	bpql	0.887	7.5	19	1.11	29	0.02	bpql	0.011	
MLS-4RED 062000	bpql	bpql	78	bpql	bpql	bpql	0.005	0.035	4	28	0.008	26	0.04	bpql	0.004
MLS-5BLUE 062000	0.03	0.006	63	bpql	bpql	bpql	0.091	6.4	26	0.551	19	0.02	bpql	0.002	
MLS-5GREEN 062000	0.04	bpql	72	bpql	bpql	bpql	0.070	4.8	30	0.238	17	0.03	bpql	0.002	
MLS-5RED 062000	0.01	0.006	63	bpql	bpql	bpql	0.030	3.6	25	0.043	13	0.03	bpql	0.002	
MLS-5RED 062000 Field Dup	0.02	0.005	63	bpql	bpql	bpql	0.036	3.7	25	0.039	13	0.03	bpql	0.001	
MLS-5RED 062000 Split	0.01	0.006	65	bpql	bpql	bpql	0.031	3.6	25	0.045	13	0.03	bpql	0.003	
GKM-6BLUE 062600	0.02	bpql	71	bpql	bpql	bpql	5.25	4.6	16	1.31	22	0.05	bpql	0.005	
GKM-6W 062600	0.08	bpql	39	bpql	bpql	bpql	0.003	4.26	4.1	8.3	0.468	17	0.08	bpql	0.006
GKM-7BLUE 062600	0.06	0.084	67	0.011	bpql	0.033	0.066	3.7	19	3.19	17	0.02	bpql	1.11	
GKM-7BLUE 062600 Field Dup	0.03	0.084	69	0.013	bpql	0.035	0.044	3.8	19	3.16	17	0.02	bpql	1.10	
GKM-7BLUE 062600 Split	0.06	0.083	66	0.011	bpql	0.033	0.065	3.7	19	3.14	17	0.02	bpql	1.10	
GKM-7W 062600	bpql	0.013	60	bpql	bpql	bpql	3.71	2.6	17	0.697	17	0.08	bpql	0.008	
GKM-8BLUE 062600	0.03	0.158	72	0.003	bpql	bpql	3.67	4.0	17	0.965	18	0.21	bpql	0.045	
GKM-8GREEN 062600	0.04	0.123	70	0.002	bpql	0.004	1.86	3.8	17	0.672	18	0.15	bpql	0.030	
GKM-8RED 062600	0.03	0.020	72	bpql	bpql	bpql	2.24	3.6	16	1.32	17	0.15	bpql	0.004	
GKM-8W 062600	0.01	0.016	65	bpql	bpql	bpql	0.866	7.1	15	0.837	18	0.04	bpql	0.003	
GKM-9BLUE 062600	bpql	0.074	67	bpql	bpql	bpql	7.55	6.2	18	1.07	23	0.17	bpql	0.002	
GKM-9GREEN 062600	bpql	0.040	69	bpql	bpql	bpql	1.85	6.1	18	0.870	23	0.05	bpql	0.008	

EPA Method 200.15 Multi-Level Piezometer Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
JKM-9RED 062600	0.01	0.071	64	bpql	bpql	bpql	5.39	6.7	16	0.976	24	0.07	bpql	0.002
JKM-9W 062600	bpql	0.049	53	bpql	bpql	bpql	0.909	4.6	13	1.21	18	0.10	bpql	0.003
MLS-3RED 062700	0.11	0.096	110	0.002	bpql	0.007	0.332	34	59	2.30	70	0.30	bpql	0.005
MLS-3RED 062700 Field Dup	0.04	0.041	85	bpql	bpql	0.020	0.063	19	36	0.662	52	0.16	bpql	0.003
MLS-3RED 062700 Split	0.11	0.096	110	0.002	bpql	0.006	0.318	34	59	2.30	71	0.29	bpql	0.004
MLS-3W 062700	0.03	0.013	63	bpql	bpql	0.004	0.061	17	25	0.814	33	0.09	bpql	0.003
MLS-5BLUE 062700	bpql	bpql	68	bpql	bpql	bpql	0.024	4.4	29	0.024	15	0.02	bpql	0.002
MLS-5GREEN 062700	0.02	0.008	69	bpql	bpql	bpql	0.040	3.9	29	0.006	15	0.04	bpql	0.003
MLS-5RED 062700	bpql	bpql	65	bpql	bpql	bpql	0.021	4.2	26	0.034	13	0.03	bpql	0.002
MLS-5W 062700	0.02	bpql	61	bpql	bpql	bpql	0.040	3.9	24	0.383	12	0.02	bpql	0.003
JKM-2W 062800	0.02	0.006	34	bpql	bpql	0.008	0.074	6.5	5.8	0.167	27	0.02	bpql	0.005
JKM-4W 062800	bpql	bpql	81	bpql	bpql	0.004	0.042	5.1	20	0.116	26	0.06	bpql	0.009
JKM-1W 062900	0.01	0.007	79	bpql	bpql	bpql	0.045	5.6	15	0.769	18	0.03	bpql	0.002
JKM-3W 062900	bpql	bpql	83	0.002	bpql	bpql	0.042	7.1	16	0.174	23	0.02	bpql	0.066
JKM-5W 062900	0.03	bpql	69	bpql	bpql	0.004	0.212	8.7	14	0.300	23	0.02	bpql	0.012
MLS-4RED 063000	bpql	bpql	79	bpql	bpql	bpql	0.031	4.2	28	0.006	27	0.04	bpql	0.003
MLS-4W 063000	bpql	bpql	77	bpql	bpql	bpql	0.022	4.2	27	0.050	27	0.05	bpql	0.012
JKM-1GREEN 071700	0.06	bpql	72	bpql	bpql	bpql	0.261	4.7	21	4.38	20	0.01	bpql	0.007
JKM-1RED 071700	bpql	0.011	76	bpql	bpql	bpql	0.030	5.2	14	0.005	17	0.06	bpql	0.002
JKM-1W 071700	bpql	0.012	76	bpql	bpql	bpql	0.029	5.4	15	0.014	17	0.06	bpql	0.005
JKM-2BLUE 071700	0.11	0.009	32	bpql	bpql	0.020	0.389	7.0	5.6	0.138	26	0.04	bpql	0.012
JKM-2W 071700	bpql	bpql	33	bpql	bpql	bpql	0.035	6.5	5.8	0.010	27	0.03	bpql	0.003
JKM-2W 071700 Split	bpql	bpql	33	bpql	bpql	bpql	0.036	6.6	5.8	0.010	26	0.03	bpql	0.003
JKM-2W FD 071700	bpql	bpql	32	bpql	bpql	bpql	0.038	6.4	5.5	0.007	26	0.02	bpql	0.004
JKM-3BLUE 071700	bpql	0.015	84	0.003	bpql	bpql	0.031	6.9	16	0.005	22	0.04	bpql	0.368
JKM-3GREEN 071700	bpql	0.009	86	bpql	bpql	bpql	0.035	6.9	16	0.015	24	0.02	bpql	0.094
JKM-3RED 071700	bpql	0.012	82	0.001	bpql	bpql	0.040	6.7	15	0.004	22	0.04	bpql	0.164
JKM-5BLUE 071700	0.02	0.006	78	0.004	bpql	0.047	0.032	5.1	17	0.393	19	0.02	bpql	0.220
MLS-4RED 071800	bpql	bpql	74	bpql	bpql	bpql	0.022	4.4	27	0.003	27	0.05	bpql	0.001
MLS-4W 071800	bpql	bpql	73	bpql	bpql	bpql	0.026	4.3	27	0.014	27	0.04	bpql	0.005
MLS-5BLUE 071800	bpql	bpql	73	bpql	bpql	bpql	0.034	5.3	31	0.319	16	0.02	bpql	0.003
MLS-5GREEN 071800	0.01	0.008	81	bpql	bpql	bpql	0.031	4.4	34	0.153	18	0.03	bpql	0.003

EPA Method 200.15 Multi-Level Piezometer Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
MLS-5RED 071800	bpql	0.006	69	bpql	bpql	bpql	0.021	3.8	27	0.013	13	0.03	bpql	0.003
MLS-5W 071800	0.01	bpql	68	bpql	bpql	bpql	0.040	3.8	27	0.175	12	0.03	bpql	0.003
GKM-3W 071900	0.02	0.006	81	0.001	bpql	0.003	0.048	7.2	15	0.151	22	0.02	bpql	0.083
GKM-5W 071900	0.03	bpql	74	bpql	bpql	bpql	0.100	8.1	16	0.259	21	0.01	bpql	0.016
GKM-4BLUE 072000	bpql	bpql	82	bpql	bpql	0.007	0.045	5.6	21	0.041	29	0.05	bpql	0.018
GKM-4GREEN 072000	0.04	0.008	79	bpql	bpql	0.010	0.092	5.7	20	0.529	31	0.03	bpql	0.057
GKM-4RED 072000	bpql	bpql	82	bpql	bpql	0.007	0.058	5.6	21	0.008	29	0.05	bpql	0.013
GKM-4W 072000	0.01	bpql	80	bpql	bpql	0.003	0.043	5.3	20	0.009	24	0.08	bpql	0.008
GKM-8BLUE 072000	0.03	0.088	67	0.002	bpql	0.003	4.13	3.8	16	0.971	17	0.22	bpql	0.042
GKM-8RED 072000	bpql	0.022	69	bpql	bpql	bpql	1.53	3.6	16	1.12	18	0.14	bpql	0.004
GKM-8W 072000	0.01	bpql	61	bpql	bpql	bpql	1.94	4.3	14	0.962	16	0.03	bpql	0.004
GKM-9BLUE 072000	0.01	0.064	57	bpql	bpql	bpql	6.97	5.9	15	0.829	22	0.16	bpql	0.002
GKM-9RED 072000	0.01	0.087	62	0.002	bpql	bpql	4.46	6.2	16	0.968	24	0.10	bpql	0.002
GKM-9W 072000	bpql	0.049	51	0.001	bpql	bpql	0.566	4.5	12	1.09	18	0.10	bpql	0.003
MLS-3RED 072000	0.09	0.016	63	bpql	bpql	0.006	0.181	14	23	0.798	27	0.18	bpql	0.003
MLS-3W 072000	bpql	0.006	64	bpql	bpql	bpql	0.034	6.9	18	0.18	14	0.05	bpql	0.002
GKM-6BLUE 072400	0.15	bpql	48	bpql	bpql	bpql	0.383	4.6	10	0.693	19	0.02	bpql	0.003
GKM-6W 072400	bpql	bpql	37	bpql	bpql	bpql	3.67	4.2	8	0.426	17	0.07	bpql	0.001
GKM-7BLUE 072400	0.10	0.111	65	0.005	bpql	0.041	0.209	3.4	18	2.37	17	0.05	bpql	0.609
GKM-7W 072400	bpql	0.014	61	bpql	bpql	bpql	3.47	2.6	17	0.669	16	0.08	bpql	0.005
GKM-1GREEN 082800	bpql	bpql	75	bpql	bpql	bpql	0.052	5.1	21	0.715	20	0.01	bpql	0.005
GKM-1RED 082800	bpql	0.013	85	bpql	bpql	bpql	0.045	5.6	15	0.004	19	0.06	bpql	0.002
GKM-1W 082800	bpql	0.015	83	bpql	bpql	bpql	0.037	5.7	16	0.011	20	0.06	bpql	0.002
MLS-3RED 082800	0.03	0.009	110	bpql	bpql	0.004	0.077	12	31	0.915	19	0.09	bpql	0.002
MLS-3W 082800	0.01	bpql	110	bpql	bpql	0.004	0.038	5.9	26	0.089	15	0.05	bpql	0.003
MLS-4RED 082800	bpql	0.005	76	bpql	bpql	bpql	0.02	4.5	28	0.004	27	0.05	bpql	0.003
MLS-4W 082800	bpql	bpql	78	bpql	bpql	bpql	0.02	4.4	27	0.004	27	0.05	bpql	0.004
MLS-5BLUE 082800	bpql	bpql	70	bpql	bpql	bpql	0.158	5.1	28	0.423	14	0.02	bpql	0.002
MLS-5RED 082800	bpql	0.006	68	bpql	bpql	bpql	0.025	3.9	27	0.01	13	0.03	bpql	0.002
MLS-5W 082800	bpql	bpql	68	bpql	bpql	bpql	0.029	3.9	27	0.072	13	0.03	bpql	0.002

EPA Method 200.15 Multi-Level Piezometer Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
GKM-2BLUE 082900	0.04	0.006	32	bpql	bpql	0.01	0.134	6.7	5.5	0.012	27	0.03	bpql	0.006
GKM-2W 082900	bpql	bpql	33	bpql	bpql	0.043	6.7	5.6	0.004	27	0.03	bpql	0.002	
GKM-6BLUE 082900	0.04	0.005	39	bpql	bpql	bpql	1.35	4.2	8.3	0.632	17	0.02	bpql	0.002
GKM-6W 082900	bpql	bpql	37	bpql	bpql	bpql	3.7	4.3	7.9	0.417	18	0.08	bpql	0.003
GKM-7BLUE 082900	0.13	0.097	55	0.003	bpql	0.033	0.832	3	16	1.77	16	0.07	bpql	0.329
GKM-7RED 082900	0.08	0.074	54	0.003	bpql	0.021	0.941	3.1	15	1.16	15	0.03	bpql	0.118
GKM-7W 082900	bpql	0.013	52	bpql	bpql	bpql	2.96	2.5	15	0.567	15	0.08	bpql	0.003
GKM-8BLUE 082900	0.02	0.048	62	bpql	bpql	bpql	4.43	3.4	14	0.897	17	0.36	bpql	0.012
GKM-8RED 082900	0.02	0.021	65	bpql	bpql	bpql	1.17	3.7	15	1.03	18	0.18	bpql	0.003
GKM-8W 082900	0.04	bpql	59	bpql	bpql	bpql	0.562	4.3	13	0.771	16	0.04	bpql	0.003
GKM-9BLUE 082900	0.01	0.08	50	0.001	bpql	bpql	5.76	5.4	14	0.637	21	0.15	bpql	bpql
GKM-9RED 082900	0.02	0.072	54	0.001	bpql	bpql	4.14	5.7	14	0.866	22	0.15	bpql	0.001
GKM-9W 082900	bpql	0.052	48	0.001	bpql	bpql	0.483	4.5	11	1.03	17	0.11	bpql	0.002
GKM-3BLUE 083000	bpql	0.015	79	0.003	bpql	bpql	0.036	7.3	14	0.012	23	0.05	bpql	0.367
GKM-3GREEN 083000	bpql	0.009	78	bpql	bpql	0.003	0.036	6.9	15	0.009	24	0.02	bpql	0.097
GKM-3RED 083000	bpql	0.011	75	bpql	bpql	0.003	0.036	6.8	14	0.007	23	0.04	bpql	0.158
GKM-3W 083000	bpql	0.008	76	0.005	bpql	0.009	0.061	7.1	14	0.075	23	0.03	bpql	0.125
GKM-4BLUE 083000	bpql	bpql	85	bpql	bpql	0.011	0.037	5.8	23	0.013	29	0.05	bpql	0.017
GKM-4RED 083000	bpql	bpql	85	bpql	bpql	0.016	0.034	5.8	23	0.011	28	0.05	bpql	0.021
GKM-4W 083000	bpql	bpql	83	bpql	bpql	0.004	0.031	5.7	21	0.007	25	0.08	bpql	0.009
GKM-5BLUE 083000	bpql	0.009	79	0.003	bpql	0.035	0.042	5.3	17	0.03	21	0.02	bpql	0.223
GKM-5W 083000	0.33	bpql	79	0.002	bpql	0.01	0.457	8.5	16	0.289	21	0.04	bpql	0.061
GKM-6BLUE 092900	0.08	bpql	39	bpql	bpql	bpql	3.65	3.3	8.3	0.67	18	0.07	bpql	0.002
GKM-6GREEN 092900	0.05	bpql	47	bpql	bpql	bpql	0.173	4.2	11	0.347	21	0.01	bpql	0.01
GKM-6W 092900	0.01	bpql	37	bpql	bpql	bpql	3.61	4.2	7.8	0.409	18	0.08	bpql	0.003
GKM-7BLUE 092900	0.02	0.034	60	0.003	bpql	0.014	0.662	3	17	1.7	16	0.03	bpql	0.363
GKM-7RED 092900	0.05	0.04	59	bpql	bpql	0.017	2.29	2.8	17	1.06	16	0.08	bpql	0.068
GKM-7W 092900	bpql	0.012	55	bpql	bpql	bpql	3.24	2.5	16	0.606	16	0.08	bpql	0.003
GKM-8BLUE 092900	0.06	0.035	57	bpql	bpql	bpql	4.23	3.4	14	0.848	16	0.35	bpql	0.009
GKM-8GREEN 092900	0.03	0.016	61	bpql	bpql	0.005	2.44	3.4	15	0.718	18	0.39	bpql	0.008
GKM-8RED 092900	0.01	0.018	62	bpql	bpql	bpql	1.01	3.5	15	0.953	17	0.19	bpql	0.003
GKM-8W 092900	0.03	bpql	58	bpql	bpql	bpql	0.329	4.4	13	0.66	16	0.04	bpql	0.003

EPA Method 200.15 Multi-Level Piezometer Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
GKM-9BLUE 092900	0.03	0.099	47	0.002	bpql	bpql	4.99	5.3	13	0.583	19	0.11	bpql	0.002
GKM-9GREEN 092900	0.01	0.047	48	bpql	bpql	bpql	1.71	5.1	13	1	19	0.03	bpql	0.009
GKM-9RED 092900	0.01	0.072	51	0.001	bpql	bpql	3.9	5.5	13	0.804	21	0.16	bpql	0.002
GKM-9W 092900	0.01	0.052	48	bpql	bpql	bpql	0.445	4.7	12	1.06	18	0.11	bpql	0.002
GKM-1GREENB 093000	bpql	bpql	89	bpql	bpql	bpql	0.345	5.5	23	4.66	21	bpql	bpql	0.006
GKM-1GREENC 093000	bpql	bpql	89	bpql	bpql	bpql	0.417	5.5	23	4.37	21	bpql	bpql	0.005
GKM-1REDA 093000	bpql	0.013	86	bpql	bpql	bpql	0.031	6.1	18	0.006	20	0.05	bpql	0.002
GKM-1REDB 093000	bpql	0.012	86	bpql	bpql	bpql	0.031	6.1	18	0.001	21	0.05	bpql	bpql
GKM-1REDC 093000	bpql	0.013	87	bpql	bpql	bpql	0.032	6.1	17	0.001	21	0.05	bpql	bpql
GKM-1WA 093000	bpql	0.015	85	bpql	bpql	bpql	0.026	6.2	17	0.004	21	0.06	bpql	0.001
GKM-1WB 093000	bpql	0.015	85	bpql	bpql	bpql	0.023	6.2	18	0.002	21	0.06	bpql	bpql
GKM-1WC 093000	bpql	0.015	86	bpql	bpql	bpql	0.022	6.2	17	0.001	21	0.06	bpql	bpql
GKM-2BLUE 093000	0.06	0.006	31	bpql	bpql	0.009	0.153	6.6	5.5	0.007	26	0.03	bpql	0.008
GKM-2W 093000	0.02	bpql	31	bpql	bpql	bpql	0.067	6.7	5.6	0.005	26	0.02	bpql	0.002
GKM-3BLUE 093000	bpql	0.015	77	0.003	bpql	bpql	0.035	6.9	14	0.007	23	0.04	bpql	0.337
GKM-3GREEN 093000	bpql	0.009	77	bpql	bpql	bpql	0.033	6.8	15	0.004	23	0.02	bpql	0.092
GKM-3RED 093000	bpql	0.012	76	bpql	bpql	bpql	0.043	7	15	0.005	23	0.04	bpql	0.166
GKM-3W 093000	bpql	0.011	78	0.002	bpql	bpql	0.044	7.1	14	0.006	23	0.04	bpql	0.179
GKM-5BLUE 093000	bpql	0.01	81	0.002	bpql	0.036	0.04	5.2	19	0.029	21	0.03	bpql	0.226
GKM-5W 093000	bpql	bpql	79	bpql	bpql	0.003	0.052	7.7	17	0.154	21	0.01	bpql	0.043
GKM-4BLUE 100100	bpql	0.005	85	bpql	bpql	0.01	0.03	5.7	23	0.004	28	0.06	bpql	0.014
GKM-4GREEN 100100	0.02	0.008	87	bpql	bpql	0.009	0.11	5.5	24	0.372	30	0.04	bpql	0.031
GKM-4RED 100100	bpql	bpql	82	bpql	bpql	0.013	0.03	5.7	23	0.009	27	0.06	bpql	0.02
GKM-4W 100100	bpql	bpql	82	bpql	bpql	0.003	0.03	5.7	22	0.004	26	0.07	bpql	0.007
MLS-3RED 100100	bpql	0.009	97	bpql	bpql	0.005	0.17	13	33	1.37	19	0.15	bpql	0.015
MLS-3W 100100	bpql	bpql	110	bpql	bpql	0.007	0.025	5.8	29	0.07	17	0.05	bpql	0.025
MLS-4RED 100100	bpql	bpql	79	bpql	bpql	bpql	0.02	4.6	28	0.005	27	0.05	bpql	0.002
MLS-4W 100100	bpql	bpql	79	bpql	bpql	bpql	0.02	4.7	28	bpql	28	0.05	bpql	0.016
MLS-5RED 100100	bpql	0.006	69	bpql	bpql	bpql	0.033	4	28	0.01	14	0.03	bpql	bpql
MLS-5W 100100	bpql	0.005	70	bpql	bpql	bpql	0.03	4.1	29	0.045	13	0.03	bpql	0.004

Note: bpql = below probable quantitative limit

EPA Method 200.15 Suction Lysimeter Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
ALYSD2-2 071700	bpql	0.016	93	bpql	bpql	0.011	0.041	3.8	31	0.012	28	0.14	bpql	0.002
ALYSS2-2 071700	0.01	0.212	57	0.005	bpql	0.013	0.047	6.4	16	0.013	14	0.61	bpql	0.003
LYSD-2 071700	0.03	0.01	31	0.001	bpql	0.012	0.040	4.1	4.4	0.166	20	0.30	bpql	0.088
LYSD2-1 071700	bpql	0.026	130	bpql	bpql	0.014	0.034	2.5	56	0.014	310	0.08	bpql	0.002
LYSD-3 071700	0.09	bpql	59	0.002	bpql	0.011	0.085	4.5	16	0.301	26	0.07	bpql	0.226
LYSS-1 071700	bpql	0.295	320	0.007	bpql	0.057	0.070	13	250	0.031	860	0.06	0.0135	0.006
LYSS-2 071700	0.03	bpql	23	bpql	bpql	0.008	0.041	2.4	4.3	0.098	20	0.13	bpql	0.018
LYSS-3 071700	0.05	bpql	67	0.014	bpql	0.020	0.067	6.8	31	1.11	54	0.05	bpql	4.75
LYSS-5 071700	bpql	bpql	110	0.077	bpql	1.15	0.044	9.6	17	1.91	32	0.03	bpql	25.3
LYSVD-1 071700	bpql	0.019	94	bpql	bpql	0.009	0.029	3.3	32	0.027	89	0.04	bpql	0.006
LYSVD2-2 071700	0.07	0.013	31	0.002	bpql	0.016	0.061	4.7	4.8	0.434	25	0.18	bpql	0.340
LYSVD2-3 071700	bpql	0.022	68	bpql	bpql	0.004	0.036	4.0	14	0.018	23	0.12	bpql	0.002
LYSVD-5 071700	0.07	0.007	53	bpql	bpql	bpql	0.068	1.9	8.1	0.027	21	0.07	bpql	0.060
ALYSD2-3 071800	bpql	0.128	130	0.003	bpql	0.013	0.041	24	38	0.017	19	0.20	bpql	0.003
ALYSS2-3 071800	0.01	0.240	84	0.005	bpql	0.041	0.051	23	16	0.003	49	1.5	bpql	0.003
BLYSD-2 072000	bpql	0.016	89	bpql	bpql	0.025	0.040	18	28	0.018	57	0.13	bpql	0.005
BLYSS-2 072000	0.01	0.111	61	0.002	bpql	0.052	0.045	16	16	0.014	68	0.44	bpql	0.004
LYSD2-9 072000	bpql	0.049	60	0.001	bpql	0.006	0.036	3.5	13	0.001	17	0.10	bpql	0.002
LYSD-4 072000	0.05	0.027	97	0.010	bpql	0.694	0.079	7.2	40	0.769	310	0.18	bpql	1.29
LYSS2-4 072000	0.78	0.006	210	0.314	bpql	50.4	0.125	43	340	71	1700	0.01	0.0143	51.6
LYSVD2-8 072000	bpql	0.006	66	0.001	bpql	0.022	0.082	1.8	15	0.281	24	0.04	bpql	0.198
LYSVD-9 072000	bpql	0.048	67	0.001	bpql	0.006	0.028	5.9	16	0.002	22	0.06	bpql	0.002
LYSD-7 072400	0.18	0.005	200	0.096	bpql	21.9	0.043	3.9	31	8.2	23	0.02	0.01	22.3
LYSS-7 072400	bpql	bpql	180	0.149	bpql	22.4	0.045	4.8	34	13.7	29	0.02	0.01	33
LYSVD2-7 072400	bpql	bpql	170	0.043	bpql	1.99	0.042	3.1	31	1.40	22	0.02	bpql	10.6
LYSVD-6 072400	0.01	0.015	97	bpql	bpql	0.015	0.049	8.5	30	0.003	67	0.26	bpql	0.005
ALYSD-1 081400	bpql	0.185	140	0.004	bpql	0.046	0.039	6.9	27	0.003	56	0.41	bpql	0.003
ALYSD-1 082800	bpql	0.205	140	0.005	bpql	0.057	0.047	5.9	28	0.001	59	0.49	bpql	0.005
LYSD2-1 082800	bpql	0.024	130	bpql	bpql	0.012	0.037	1.9	55	0.001	300	0.04	bpql	0.003
LYSVD-1 082800	bpql	0.018	93	bpql	bpql	0.008	0.026	3.3	30	bpql	75	0.03	bpql	0.01
LYSD-2 082900	0.01	0.02	26	0.001	bpql	0.015	0.037	3.9	3.8	0.07	19	0.31	bpql	0.031
LYSD2-9 082900	0.01	0.208	58	0.005	bpql	0.009	0.038	4.8	14	0.001	17	0.13	bpql	0.003

EPA Method 200.15 Suction Lysimeter Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	0.0005	0.5	0.01	0.01	0.001
LYSD-7 082900	0.61	bpql	190	0.066	bpql	19.9	0.041	3.2	23	6.21	20	bpql	bpql	15.6
LYSD-8 082900	bpql	0.027	76	0.004	bpql	0.034	0.032	6.1	18	0.021	21	0.08	bpql	1
LYSVD2-2 082900	0.02	0.022	26	0.001	bpql	0.018	0.038	4.5	3.9	0.159	23	0.18	bpql	0.078
LYSVD2-7 082900	bpql	bpql	140	0.037	bpql	2.72	0.033	3	27	0.848	19	0.02	bpql	9.46
LYSVD2-8 082900	bpql	0.013	69	0.002	bpql	0.05	0.039	2	16	0.126	24	0.03	bpql	0.502
LYSVD-9 082900	bpql	0.076	61	0.002	bpql	0.006	0.027	5.8	15	0.002	21	0.04	bpql	0.009
LYSD2-5 083000	bpql	bpql	150	0.02	bpql	0.244	0.035	8.3	27	0.434	38	bpql	bpql	7.98
LYSD-3 083000	bpql	0.02	74	0.002	bpql	0.015	0.035	6.1	21	0.121	35	0.09	bpql	0.145
LYSD-4 083000	0.01	0.031	100	0.008	bpql	0.685	0.055	6	32	0.276	290	0.2	bpql	0.947
LYSS2-4 083000	5.8	bpql	150	0.166	bpql	35.6	0.093	32	200	38.5	1200	bpql	0.134	28.4
LYSVD2-3 083000	bpql	0.027	65	bpql	bpql	0.005	0.037	4.4	13	bpql	24	0.11	bpql	0.006
LYSVD-4 083000	bpql	0.014	62	0.003	bpql	0.134	0.032	3.9	19	0.273	55	0.03	bpql	0.479
LYSD2-9 092900	bpql	0.2	64	0.004	bpql	0.008	0.033	5	16	0.001	17	0.08	bpql	0.002
LYSD-7 092900	1.1	bpql	170	0.055	bpql	17.7	0.038	2.7	21	5.21	19	bpql	bpql	13.5
LYSD-8 092900	bpql	0.025	72	0.004	bpql	0.043	0.027	5.6	17	0.005	20	0.07	bpql	1.26
LYSVD2-7 092900	0.03	bpql	110	0.031	bpql	3.14	0.028	2.6	23	0.555	18	0.02	bpql	8.3
LYSVD2-8 092900	bpql	0.013	71	0.001	bpql	0.048	0.034	1.7	16	0.036	24	0.02	bpql	0.399
LYSVD-9 092900	bpql	0.043	25	bpql	bpql	bpql	0.011	2.7	5.7	bpql	9.5	0.02	bpql	0.002
LYSD-2 093000	0.02	0.023	22	0.001	bpql	0.024	0.033	3.5	3.3	0.031	18	0.31	bpql	0.044
LYSD2-1 093000	bpql	0.02	120	bpql	bpql	0.012	0.031	1.5	53	0.002	290	0.02	bpql	0.014
LYSD2-5 093000	bpql	bpql	190	0.031	bpql	1.34	0.034	8.6	32	0.428	40	0.01	bpql	12.9
LYSD-3 093000	bpql	0.023	80	0.003	bpql	0.018	0.033	6	23	0.05	35	0.08	bpql	0.392
LYSS-1 093000	bpql	0.318	380	0.006	bpql	0.041	0.054	6.7	230	0.002	920	0.01	bpql	0.004
LYSVD-1 093000	bpql	0.01	80	bpql	bpql	0.01	0.023	2.6	27	0.042	52	0.02	bpql	0.027
LYSVD2-2 093000	0.07	0.029	20	0.002	bpql	0.042	0.058	4	3.3	0.065	21	0.16	bpql	0.128
LYSVD2-3 093000	bpql	0.034	57	bpql	bpql	0.005	0.035	4	11	bpql	23	0.15	bpql	0.002
ALYSS-1 100100	bpql	0.244	120	0.006	bpql	0.045	0.041	4.8	24	bpql	57	0.64	bpql	0.003
LYSD-4 100100	bpql	0.037	76	0.007	bpql	0.8	0.05	4.9	26	0.077	250	0.2	bpql	0.941
LYSS2-4 100100	6.4	bpql	120	0.122	bpql	29.1	0.14	25	150	27.6	1000	0.02	0.143	20.6
LYSVD-4 100100	bpql	0.017	63	0.003	bpql	0.159	0.03	3.6	19	0.097	57	0.02	bpql	0.418

Note: bpql = below probable quantitative limit

EPA Method 200.15 Effluent Samples by ICAP-ES

Sample Name	Al (ppm)	As (ppm)	Ca (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Fe (ppm)	K (ppm)	Mg (ppm)	Mn (ppm)	Na (ppm)	P (ppm)	Pb (ppm)	Zn (ppm)
Probable Quantitative Limit	0.01	0.005	0.02	0.001	0.005	0.003	0.005	0.2	0.1	5E-04	0.5	0.01	0.01	0.001
INFLOW 071900	bpql	bpql	54	bpql	bpql	bpql	0.03	6.7	14	0.063	32	1.3	bpql	0.002
OUTFLOW 071900	bpql	bpql	55	bpql	bpql	0.034	0.029	6.6	14	0.056	32	1.3	bpql	0.005
SPRINKLER 072000	0.03	bpql	58	bpql	bpql	0.007	0.083	6.8	15	0.112	33	1.5	bpql	0.012
<i>Note: bpql = below probable quantitative limit</i>														